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HELMINTHOLOGICAL ABSTRACTS

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HELMINTHOLOGICAL ABSTRACTS

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310—Acta Agriculturae Scandinavica.

a. FRANDSEN, K. J., 1951.—" Studies on the clover stem nematode (*Tylenchus dipsaci* Kühn)." 1 (3), 203–270.

(310a) Frandsen states that attacks by *Tylenchus dipsaci* [*Ditylenchus dipsaci*] on red clover, white clover and lucerne are widespread throughout Denmark. He shows a positive correlation between the rainfall in May and June and the severity of nematode attack on red clover, explaining this in the easier spreading of the nematodes and the more vigorous growth of the plants. Investigating the biological specialization of nematodes from red clover, white clover and lucerne Frandsen shows that the nematodes prefer the plant they came from although they may attack other pasture legumes. Thus he supports the view that biological races of *D. dipsaci* exist but that they are not sharply differentiated in their tastes. He also suggests that there are variations in infectivity of populations from similar host plants from different places. Rotations in which red clover, white clover and lucerne are grown seem possible but the main hope lies in the breeding of resistant varieties of pasture legumes. The work already carried out indicates that some slight increase in resistance of red clover has been achieved. Various experimental methods are described and figured. J.B.G.

311—Acta Agronomica. Palmira.

a. PLAZAS M., G., 1951.—"Una afección de la *Musa paradisiaca* y otras Musáceas." 1 (3), 133–167.

(311a) The introduction, economic importance and diseases of the banana in Colombia, South America, are discussed briefly and are followed by a full description of the symptoms due to root-knot nematodes (*Heterodera marioni*), the life-history of the parasite and the methods of control. M.T.F.

312—Acta Dermato-Venereologica.

a. BLUMENTHAL, B., 1951.—" A case of creeping eruption." 31 (3), 308–309.

(312a) Creeping eruption on the feet and buttocks was observed in a seaman two days after walking along the beach in a violent downpour of rain during a visit to Madagascar. The history and clinical symptoms suggested that a nematode larva, probably *Ancylostoma braziliense*, was the causal factor although examination of a strip of skin excised from in front of one of the burrows failed to reveal the parasite. The symptoms subsided after repeated freezing with ethyl chloride. R.T.L.

313—Acta Gastro-Enterologica Belgica.

a. CRISMER, R. & DALLEMAGNE, M. J., 1951.—" Action taenifuge du tertio-butyl-6-chloro-1-bêta-naphtol." 14 (5/6), 575–578.

(313a) Tertiary-butyl-6-chloro-1-β-naphthol, which has no toxic action on dogs or man, is an efficient anthelmintic against tapeworms. Of 31 persons treated 11 evacuated

* Titles so marked throughout this number have not been seen in the original.

the tapeworm with the scolex and 15 without the scolex. In three cases there was a recurrence. One cachet of 0·5 gm. was administered at five-minute intervals until 10 cachets had been taken. A purgative was given one hour later. R.T.L.

314—Acta Medica Scandinavica. Supplementum.

a. BJÖRKENHEIM, G., 1951.—"Neurological changes in pernicious tapeworm anaemia." 140, Suppl. 260, 125 pp.

(314a) In this comprehensive study of the neurological aspects of the pernicious anaemia associated with *Diphyllobothrium latum* infection, 75 out of the 93 patients investigated had subacute combined degeneration of the spinal cord and peripheral nerve degeneration. In 34 of the cases the patients' capacity for work was reduced. Of 30 tapeworm carriers without pernicious anaemia, ten showed slight symptoms or signs of nervous lesions. Expulsion of the tapeworm resulted in almost complete remission of the neurological manifestations. In some cases folic acid therapy had a deleterious effect. Liver extracts or vitamin B_{12} did not give better results than anthelmintic treatment. R.T.L.

315—Acta Radiologica.

a. DE BERNARDI, E., 1951.—"Pulmonary hydatid disease in man." 36 (3), 234–240.

316—Acta Tropica. Basle.

a. PICK, F., 1951.—"Nouvelle méthode d'enrichissement des microfilaires sanguicoles *in vivo*." 8 (2), 154–157.

b. SCHNEIDER, J., 1951.—"État actuel de la thérapeutique de la filariose à *F. loa* par le 1-diéthyl-carbamyl-4-méthyl-pipérazine." 8 (4), 345–359. [English & German summaries p. 359.]

(316a) Pick was able to obtain microfilariae of *Loa loa papionis* from seven out of ten *Papio sphinx* in which the usual blood films were negative. By applying a "Péan" compressor to produce a condition of stasis in the marginal vein of the ear of the baboon, and five minutes later withdrawing a few drops of blood by incising the vein, only the first drops showed one or two microfilariae. R.T.L.

(316b) Schneider reviews the position of hetrazan in the treatment of *Loa loa* infection. He states that over 80% of cases of less than five years' duration are cured by a single course of 3–4 gm. given as 10 daily doses of 0·4 gm. for adults of good physique. The daily dose is divided into 0·1 gm. in the morning, 0·1 or 0·2 gm. at noon and 0·1 gm. in the evening. For children the daily dosage is at the rate of 6 mg. per kg. body-weight. In long standing infections the 10-day course may have to be repeated once, twice or even three times. Cases which have had malaria should be given Nivaquine (chloroquine) at the rate of 0·3 gm. daily for five days before the treatment for loaiasis begins. R.T.L.

317—Acta Zoologica et Oecologica, Universitatis Lodziensis.

a. SANDNER, H., 1951.—"Badania nad fauną pijawek." Sectio III, No. 16, 50 pp. [French & Russian summaries.]

(317a) The following leeches occur in the district of Lodz: *Piscicola geometra, Hemiclepsis marginata, Theromyzon tessulatum, Batracobdella paludosa, Glossiphonia heteroclita, G. complanata, Helobdella stagnalis, Hirudo medicinalis, Haemopis sanguisuga, Erpobdella octoculata, E. lineata, E. monostriata, E. testacea* and *E. nigricollis*. Leeches are least common in running waters and most plentiful in ponds and in the Niebieskie Zródla water-bed. Examination of the water for oxidation, oxygen content, iron, temperature and *p*H, showed that the leeches are euryionic forms. In cold waters *Erpobdella lineata* is common but *E. nigricollis* is not. C.R.

318—Advances in Agronomy. New York.

a. TAYLOR, A. L., 1951.—"Chemical treatment of the soil for nematode control." 3, 243–264.

(318a) Taylor briefly summarizes the history and present position of soil fumigation with nematicides, including basic principles, fumigants, methods of application, efficacy and economics. Practical fumigation dates from 1930 when chloropicrin was first widely used; methyl bromide, D-D mixture, and ethylene dibromide followed in that order. Efficacy involves killing a high proportion of eelworms, without complete extermination as a rule, leading to increased crop yields. Ethylene dibromide and D-D cost about $37 per acre to apply over the whole soil area and, if a 25% crop increase results, the crop should have a gross value of $375 in order to give a reasonable economic return. For less valuable crops, row or spot injections may prove economic. Chloropicrin and methyl bromide, costing almost ten times as much, can be used economically only on expensive green-house crops. B.G.P.

319—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

a. ANON., 1951.—"Stem and bulb eelworm. Horticultural crops." No. 175, 6 pp. [Revision of 1947 Leaflet.]
b. ANON., 1951.—"Beet eelworm." No. 233, 6 pp. [Revision of 1950 Leaflet.]

320—Ärztliche Wochenschrift. Berlin.

a. HESSE, E., JAHNKE, K. H. & LANGER, A., 1951.—"Zum Oxyuriasisproblem." 6 (29), 691–692.
b. SCHOLZ, H., 1951.—"Klinischer Beitrag zur Frage der Oxyuriasis." 6 (34), 812–813.

(320a) Hesse & co-workers were not satisfied with their treatment of a series of cases of enterobiasis with a number of proprietary substances. Their results were (the number of cases treated is followed in parentheses by the number which were unsuccessful): Badil 13 (6); Contaverm 3 (3); Egressin 10 (4); Pyoverm 13 (6); Vermella 8 (3); Vermexan 13 (7); Vermizym 11 (9). They then used a combination of hexamethyl-*p*-rosanilinchloride (Badil) and hexylresorcinol (Destruverm) in a daily dose of from 0·06 gm. Badil with 0·2 gm. hexylresorcinol to 0·18 gm. Badil with 0·2 gm. hexylresorcinol (according to age) for 8 days. Of 47 patients so treated 39 (i.e. 83%) were negative for Enterobius ova after six to eight weeks. A.E.F.

(320b) Scholz recommends the Schüffner-Swellengrebel technique (massage of the peri-anal region with the rounded and ground end of a glass rod) as the most reliable method for diagnosing Enterobius infection. He considers that under favourable hygienic conditions a large number of infections will disappear spontaneously: treatment is only needed for heavy infections showing severe symptoms. Correct and adequate protein diet is important. Scholz concludes from his own observations that the eosinophil leucocyte count is in no way correlated with the intensity of Enterobius infection. A.E.F.

321—Agricultura Técnica. Chile.

a. MONTALDO, A., 1951.—"Fitomejoramiento para resistencia a la nematosis de la papa." 11 (1), 64–85. [English summary pp. 83–84.]

(321a) In Chile the areas in which potatoes are most heavily infected with *Heterodera marioni* lie in the central region and extend southwards to the province of Cautin. Except for small sections in Rupanco, Puerto Octay and Frutillar, the provinces of Osorno, Llanquihue and Chiloe, the principal seed producing region, are practically free of disease. *H. marioni* has not been found in Chiloe and the adjacent islands. The most appropriate remedy is the selection and production of potato varieties with genetic resistance. Out of 896 varieties and seedlings tested only 28 have proved to be resistant and only two of these, viz., Royal Kidney and seedling C77–1, have been resistant in trials for five years. The President variety was resistant in three out of four years. The Centinela varieties

C96–1, C102–5, C110–50 and C182–65 and the USDA seedling 627–164 showed resistance in tests for three years. The European varieties Bintje and King Flat and the seedling C103–3 resisted through two years of experiment. The resistance of the potato to *H. marioni* is conditioned by recessive genes. R.T.L.

322—Agricultural Journal. Department of Agriculture, Fiji.

a. OHMAN, A. F. S., 1951.—" Phenothiazine for worm parasites in horses." 22 (1), 26.
b. OHMAN, A. F. S., 1951.—" Phenothiazine for the treatment of worms in cattle, goats and sheep." 22 (1), 27–29.

(322a) In Fiji horses are commonly affected with intestinal helminths. Young animals especially are heavily infected with *Parascaris equorum*. All the animals in a group should be treated with phenothiazine. To avoid untoward effects the dose should be divided into two or three parts and each part given on successive days. R.T.L.

(322b) Phenothiazine is the best drench for the control of intestinal parasites of cattle, sheep and goats, but if the animals have reached the stage when marked symptoms are evident they should be treated twice at an interval of 10 to 14 days and if necessary at two-monthly intervals. Ewes or nannies should not be drenched within a week of lambing or kidding. Overstocking should be avoided and rotational grazing practised. R.T.L.

323—American Journal of Digestive Diseases and Nutrition.

a. McCABE, E. S. & ZATUCHNI, J., 1951.—" Fulminating trichiniasis." 18 (7), 205–208.

324—American Journal of Hygiene.

a. McMULLEN, D. B., KOMIYAMA, S. & ENDO-ITABASHI, T., 1951.—" Observations on the habits, ecology and life cycle of *Oncomelania nosophora*, the molluscan intermediate host of *Schistosoma japonicum* in Japan." 54 (3), 402–415.
b. McMULLEN, D. B., ENDO-ITABASHI, T., SETO, S., KOMIYAMA, S. & STONE, P. R., 1951.—" Seasonal studies of *Schistosoma japonicum* in the intermediate host, *Oncomelania nosophora*." 54 (3), 416–430.

(324a) In Japan rice culture and *Schistosoma japonicum* infection are closely associated. In the Yamanashi district the commonest habitats of *Oncomelania nosophora* are the irrigation ditches, not the rice fields. The Oncomelania adults show sexual dimorphism. Some evidence was obtained that they live for more than two years. Absence of moisture and reduction in temperature both stimulate hibernation. Aestivation also occurs in warm dry periods during the summer. The application of a molluscicide should be made before winter hibernation begins. The latter part of May and of September are unsuitable times for the use of molluscicides owing to the continual flow in the irrigation ditches. The optimum periods are from 1st April to 1st May, and from about 1st October to early in November. Calcium cyanamide is not only an effective molluscicide but is also an excellent fertilizer and should be applied once or twice yearly for at least two or three years. R.T.L.

(324b) Of 56,123 *Oncomelania nosophora* collected in the Yamanashi area, 1,449 were infected with *Schistosoma japonicum*, four with a monostome, two with an ophthalmoxiphidiocercaria and one with a cystophorous cercaria. The incidence and seasonal pattern varied from year to year but new infections were usually acquired late in the spring and in early summer. Old and young male and female snails were equally susceptible. Although many of those infected died within three to four months, large numbers of the mature snails hibernated and lived for about 12 months, thus increasing the risk of infection to those engaged in rice planting and cultivation. [An authors' abstract appeared in *J. Parasit.*, 34 (6, Sect. 2). See Helm. Abs., 18, No. 405bt.] R.T.L.

325—American Journal of Medical Technology.

a. ELISHEWITZ, H., 1951.—"Recent advances in parasitological diagnostic technics." 17 (4), 165–189.

(325a) Elishewitz reviews the modern techniques for the diagnosis of parasitic diseases, particularly enterobiasis and those caused by protozoa. He emphasizes the need for the standardization of techniques. For the preservation of material he recommends deep-freezing; this has been found to be extremely satisfactory for faecal specimens containing helminths or their ova, but less so for protozoa. S.W.

326—American Journal of Tropical Medicine.

a. KUNTZ, R. E. & WELLS, W. H., 1951.—"Laboratory and field evaluations of two dinitrophenols as molluscacides for control of schistosome vectors in Egypt with emphasis on importance of temperature." 31 (6), 784–824.
b. MACKIE, T. T., LARSH, Jr., J. E. & MACKIE, J. W., 1951.—"A survey of intestinal parasitic infections in the Dominican Republic." 31 (6), 825–832.
c. SCHAPIRO, M. M., 1951.—"Observations on the treatment of human teniasis with quinacrine hydrochloride (Atabrine)." 31 (6), 833–835.
d. NEGHME, A., 1951.—[Correspondence.] 31 (6), 854.

(326a) A more detailed study in different habitats in irrigation systems and at different seasons for over two years in Egypt confirms earlier opinion that dinitro-*o*-cyclohexylphenol (DCHP) and its dicyclohexylamine salt (K604) are lethal to *Biomphalaria boissyi* and *Bulinus contortus*. The accumulated results are tabulated and the activity of these new molluscicides is compared with that of copper sulphate. The importance of temperature is emphasized. DCHP is definitely superior to K604. It is lethal at 3–5 parts per million. It is not affected by aquatic plants and organic matter. After two to four weeks its ovicidal properties surpass copper sulphate at much higher concentrations. Although toxic to mammals, it does not affect livestock in the dilution used. It is toxic to fish but not to irrigated crops. Its use is practicable in situations where copper sulphate fails owing to vegetation or organic debris. R.T.L.

(326b) In a survey of the labour population on two adjoining sugar estates on the south coastal plain, east of Ciudad Trujillo, in the Republic of Dominica, the faeces of 1,139 individuals were examined. The overall incidence of helminth infections was hookworm 59·2%, *Trichuris* 58·9%, *Ascaris* 20·1%, *Strongyloides* 14·1%. Clinical hookworm disease was not common. Some differences in helminth prevalence between the two properties and their cane field villages were noted and are attributable to differences in population densities, local rainfall and soil conditions and to varying availability and use of latrines. R.T.L.

(326c) Quinacrine hydrochloride expelled *Taenia saginata* from 34 patients. Treatment consisted of 0·8 gm. given orally in four separate doses of 0·2 gm. each at intervals of ten minutes with one capsule (0·6 gm.) of bicarbonate of soda. The last dose was followed by 2 oz. of sodium sulphate. The worms were passed alive within one to two hours after the saline purge was administered. All the cases were subsequently negative to repeated stool examination. None of the patients were kept in hospital but they were placed on a bland, semi-solid, low fat diet for about 48 hours before treatment. The supper on the previous night consisted of liquids only and half an hour before treatment the patient received a single dose of 1·25 grains of phenobarbitol. The treatment proved relatively ineffective against *Hymenolepis nana*. R.T.L.

(326d) Neghme draws attention to his paper published in 1939 [for abstract see Helm. Abs., 9, No. 332a] in which he recorded the successful use of "Sostol" [a German trade name for atebrin] in three patients with taeniasis. This publication preceded that of Culbertson in 1940, in *J. Pharmacol.*, **70**, 309–314, in which its effect on *Hymenolepis fraterna* in mice was reported. R.T.L.

327—American Midland Naturalist.

a. CHANDLER, A. C., 1951.—"Studies on metacercariae of *Perca flavescens* in Lake Itasca, Minnesota." **45** (3), 711–721.
b. HUGGHINS, E. J., 1951.—"A survey of the helminths and ectoparasites of roof and cotton rats in Brazos County, Texas." **46** (1), 230–244.
c. FISCHTHAL, J. H., 1951.—"Rhopalocercariae in the trematode subfamily Gorgoderinae." **46** (2), 395–443.
d. SCHILLER, E. L., 1951.—"The Cestoda of Anseriformes of the North Central States." **46** (2), 444–461.
e. KRUIDENIER, F. J., 1951.—"The formation and function of mucoids in virgulate cercariae, including a study of the virgula organ." **46** (3), 660–683.

(327a) In perch (*Perca flavescens*) from Lake Itasca, Minnesota, Chandler found the metacercariae of *Diplostomulum scheuringi, Neascus bulboglossus, N. pyriformis* n.sp., *N. longicollis* n.sp., *N. ellipticus* n.sp., *Clinostomum marginatum, Apophallus* sp. (?) and, recorded for the first time from this host, *Cryptogonimus chyli.* The new strigeid metacercariae and the imperfectly known metacercaria of *C. chyli* are described. *N. bulboglossus* and *N. pyriformis* were also present in *Stizostedion vitreum* and in *Fundulus diaphanus.* The adult of *N. pyriformis* is possibly *Uvulifer semicircumcisus* which occurs in the kingfisher (*Megaceryle alcyon*). R.T.L.

(327b) *Rattus rattus frugivorus* caught in Brazos County, Texas, harboured *Syphacia obvelata, Mastophorus muris* var. *muris, Hymenolepis diminuta, Oochoristica ratti* and *Cysticercus fasciolaris.* The contrast in the helminth fauna now reported with that of *R. norvegicus* is attributed to differences in the habits of these rats. In the cotton-rat were found *Longistriata adunca, M. muris* var. *muris, M. muris* var. *ascaroides, Monoecocestus sigmodontis, Raillietina bakeri* and *C. fasciolaris.* It is suggested that the absence of *Litomosoides carinii* may be correlated with the negligible occurrence of its vector mite *Liponyssus bacoti.* R.T.L.

(327c) Fischthal describes five new species of rhopalocercariae from fresh-water clams in Michigan and New York, viz., *Cercaria micromyae* n.sp., *C. catatonki* n.sp., *C. honeyi* n.sp., *C. pyriformis* n.sp. and *C. filicauda* n.sp. All develop in simple daughter sporocysts. On emergence the cuticle of the club-shaped tail rapidly absorbs water and the cercaria swells up to form a balloon-like structure, into which the cercarial body quickly retracts and undergoes encystment. These metacercariae differ from the cercariae within the daughter sporocysts in having fewer penetration glands, the contents of one pair having been used during migration from the host, and in the lack of cystogenous glands, the contents of which were used up during encystment. A cercarial stylet is present in the Gorgoderinae only in those species which require a second intermediate host. A key is provided for the differentiation of *C. duplicata* and the five new species now reported. A phylogenetic tree is presented in support of the author's views on the evolution of the gorgoderine cercariae. R.T.L.

(327d) The identity and incidence of the 149 species of tapeworms collected from 184 anseriform birds belonging to 12 genera and 18 species in Wisconsin, Michigan and Ohio are set out under individual hosts and then listed alphabetically. In wild ducks the host-parasite relationship is usually maintained without serious effect on the host. As many as six species of the same genus were present in one individual. It was not uncommon to find over 1,000 cestodes in a single host. R.T.L.

(327e) Kruidenier has studied the structure, function and nature of the contents of virgulae, which are saccular or rod-like organs closely associated with the buccal cavity of certain cercariae. They are primarily paired structures which act as reservoirs in developing and emerged cercariae for the secretions of the paired unicellular glands in the posterior portion of the body. The contents are hydrolysed by inorganic acids or weak bases. With special mucin staining techniques the presence of mucins in virgulae, pre-virgula glands and homologous glands was confirmed. Their discharge supplements a

weak oral sucker as a means of attachment. There are indications that these mucins may lubricate the cercariae during pre- and post-emergent migrations in their intermediate hosts, and immunize them against the hosts' antiparasitic activities. R.T.L.

328—American Potato Journal.

a. LOWNSBERY, B. F., LOWNSBERY, J. W. & MAI, W. F., 1951.—" Nematodes found in New York State fields with several different cropping histories." 28 (8), 681–686.

(328a) Using Cobb's screening gravity technique, Lownsbery *et al.* have compared the nematode fauna present in the top six inches of soil from fields where potatoes have been grown for many years, with that of fields which have never been cropped. The nematodes, soil types and cropping histories are tabulated. The only plant-parasitic species found in large quantities were two apparently new *Pratylenchus* and one *Tylenchorhynchus*. The numbers of *Pratylenchus* present in different fields before and after 11 weeks in potatoes, and those found in potato root systems grown in fields with different cropping histories are also tabulated. R.T.L.

329—Anales del Instituto de Biología. Mexico.

a. CABALLERO Y C., E., 1951.—" Estudios helmintológicos de la región oncocercosa de México y de la República de Guatemala. Nematoda. 6a. Parte. Y algunas consideraciones en torno a los géneros *Onchocerca* Diesing, 1841, y *Acanthospiculum* Skrjabin y Schikhobalowa, 1948." 22 (1), 141–158.

b. CABALLERO Y C., E. & ZERECERO Y DÍAZ, M. C., 1951.—" Tremátodos de los murcielagos de México. VII. Presencia de *Prosthodendrium macnabi* Macy, 1936, en *Lasiurus cinereus* (Beauvois)." 22 (1), 159–167.

(329a) Descriptions are given of nine nematodes collected at Motozintla, Chiapas, viz., *Tricholeiperia leiperi* from *Trachops coffini*, *Angiostrongylus vasorum* from *Tayra barbara senex*, *Thelandros* sp. from an unidentified lizard, *Porrocaecum depressum* from *Buteo* sp., *Contracaecum* sp. from *Casmerodius albus egretta*, *Habronema mansoni* from *Cerchneis sparveria* and *Buteo* sp., *Physaloptera retusa* from *Sceloporus acanthinus* and *Ameiva undulata*, *P. turgida* from *Didelphis mesamericana tabascensis*, and *Thelazia* sp. from *Buteo latissimus*. Caballero makes the following criticisms of the work of Skryabin & Shikhobalova in 1948 on the genus *Onchocerca*: (i) *O. cervicalis*, *O. gutturosa*, *O. caecutiens* and *O. cebei* are considered by the Russian authors as valid species, whereas they have already been shown to be synonyms of *O. reticulata*, *O. lienalis*, *O. volvulus* and *O. gibsoni* respectively; (ii) *O. bovis* and *O. indica* are considered by these authors to be insufficiently described species, whereas they are in fact synonymous with *O. lienalis* and *O. gibsoni* respectively; (iii) *Dipetalonema roemeri* and the spirurid *Crassicauda fuelleborni* are incorrectly placed in *Onchocerca*; (iv) a new genus *Chinosocerca* was formed by these authors in 1937 for *O. bambusicolae*, for which species Peters created *Paronchocerca* in 1936; (v) a new genus *Acanthospiculum* was made by Skryabin & Shikhobalova in 1948 for *O. flexuosa* [referred to by them as *Filaria flexuosa*] and for *Wehrdikmansia cervipedis* [referred to as *O. cervipedis*]; Caballero states that the former is already established as a member of *Onchocerca* and that *Wehrdikmansia* was formed by himself in 1945 for the latter species; *Acanthospiculum* therefore becomes a synonym of *Wehrdikmansia*. P.M.B

(329b) *Prosthodendrium macnabi* and *P. scabrum* are described and illustrated from *Lasiurus cinereus* caught at General Anaya, Mexico City. *P. macnabi* has not been recorded from Mexico previously. R.T.L.

330—Anales del Instituto de Medicina Regional. Tucumán.

a. ROMAÑA, C., TORANZOS, L. B. & MARCOLONGO, R., 1951.—" Tratamiento de ascaridiosis con 'hetrazan' (1-diethyl-carbamyl 4-methyl piperazine hydrochloride)." 3 (2), 153–156. [English summary p. 156.]

(330a) After dosing with hetrazan at the rate of 10 mg. per kg. body-weight daily

for seven days, two out of twelve children with *Ascaris lumbricoides* did not show eggs in their faeces for one month after treatment. In two other cases, a second course of 30 mg. per kg. body-weight daily for four days was necessary. R.T.L.

331—Animal Health Leaflet. Ministry of Agriculture and Fisheries. London.

a. ANON., 1951.—"Common worms of the pig." No. 25, 4 pp. [Revision of 1950 Leaflet.]

332—Annales de Parasitologie Humaine et Comparée.

a. SCHWETZ, J., BAUMANN, H. & FORT, M., 1951.—"Recherches sur *Schistosoma rodhain* Brumpt 1931. Deuxième étude : le cycle évolutif de *S. rodhaini*." **26** (5/6), 407–411.
b. VERCAMMEN-GRANJEAN, P. H., 1951.—"Sur la chaetotaxie de la larve infestante de *Schistosoma mansoni*." **26** (5/6), 412–414.
c. VERMEIL, C., 1951.—"Présence de *Bulinus contortus* Michaud à Rhat (Fezzan)." **26** (5/6), 415–419.
d. GAUD, J. & JAUBERTIE, R., 1951.—"Rôle des facteurs humains dans la répartition géographique des bilharzioses en Afrique." **26** (5/6), 420–439.
e. DOLLFUS, R. P., 1951.—"Le genre *Acanthocephaloides* Anton Meyer 1931 n'est pas seulement méditerranéen et pontique." **26** (5/6), 440–445.
f. SCHWETZ, J., FORT, M. & BAUMANN, H., 1951.—"Sur un procédé inédit d'activation de l'émission des cercaires de schistosomes par les planorbes." **26** (5/6), 491–493.
g. PAËZ, H., 1951.—"Hématochylurie due à *Wuchereria bancrofti*." [Erratum.] **26** (5/6), 493.

(332a) Although Schwetz and his co-workers were unable to infect *Planorbis glabratus*, *P. boissyi*, *P. tanganikanus*, and *P. smithi* with cercariae of *Schistosoma rodhaini*, a high percentage of *P. pfeifferi* from Elisabethville, Belgian Congo, were found to be infected 50–60 days after exposure. A number of the *P. pfeifferi* used in the later experiments were bred in the laboratory from specimens collected at Elisabethville. It remains to be proved whether *P. pfeifferi* from other localities can be infected, or whether this local strain only is susceptible to *S. rodhaini*. P.M.B.

(332b) Vercammen-Granjean has described the symmetrical and constant arrangement of the fine "hairs" present on the body of cercariae of *Schistosoma mansoni*, which have been noted by other authors who have not given details of their position. A diagram shows that there are 24 hairs, six of which are placed on either side of the longitudinal axis, both ventrally and dorsally. There was too much movement of the cercariae for the positions of similar structures on the tail to be studied. It is suggested that these hairs may provide a new basis for the identification of schistosome cercariae. An addendum states that Buckley has confirmed these observations and has also noted the presence, but not the position, of hairs on the body of *S. bovis* cercariae. P.M.B.

(332c) Although previous searches for *Bulinus contortus* were unsuccessful in the Rhat area of Fezzan in Libya, a focus of schistosomiasis haematobia, Vermeil found many specimens in May 1951 in wells at Rhat itself, at Fehouet and at various other villages. At El Barka, where the only infested well was at a considerable distance from the village, 50% of the children had schistosomiasis. Of two wells at Rhat situated only a few metres apart, one was infested with *B. contortus* only and the other with *Planorbis* sp. only. P.M.B.

(332d) Gaud & Jaubertie consider that schistosomiasis in Africa (i) rarely occurs at altitudes of over 1,500 metres, (ii) is more prevalent in savannah country than in forested zones, and (iii) occurs more frequently in the upper and middle sections of rivers than in their lower courses. Apart from these three factors they conclude that in the spread of the two diseases latitude, altitude, hydrography and climate are of far less importance than are human factors, particularly the movements of population in relation to points where water is available. Attention is drawn to the lines of demarcation between the two racial types predominating in French Equatorial Africa and the Cameroons, which strikingly correspond with the divisions between the various zones in which schistosomiasis mansoni and haematobia respectively predominate. It is suggested that this coincidence may be due

to the migration of two types of Africans from widely separated original endemic areas of the two diseases. The results of a snail survey in French West and Equatorial Africa are mapped. The authors emphasize that no record of vectors from a locality at the time of the survey is not proof of their absence, and that their presence does not always indicate an endemic focus, although their potential role should not be disregarded. P.M.B.

(332e) Dollfus considers that the following species from Japan have been wrongly assigned by Yamaguti to the genus *Acanthocephaloides*: *A. rhinoplagusiae*, *A. neobythitis* and *A. japonicus*. He adds *A. chabanaudi* n.sp. from *Cynoglossus zanzibarensis* from the Indian Ocean to the three species already constituting the genus, *A. propinquus*, *A. incrassatus* and *A. kostylewi*. The new species is very similar to *A. propinquus* but is distinguished by the greater length of the large hooks. P.M.B.

(332f) By standing tubes of water at 18°C. which contained *Planorbis pfeifferi* experimentally infected with *Schistosoma rodhaini*, in the sun for a few hours until the water reached 29°C., and then replacing the water with tap-water at 18°C. the sudden cooling resulted in the rapid emission of very numerous cercariae. Similar but less striking results were otained by lowering the temperature from 26°C to 18°C. The reaction is probably due to sudden contraction in the hepato-pancreas. P.M.B.

(332g) [Paëz makes a number of corrections in the legend to Figure 1 in his paper which appeared in *Ann. Parasit. hum. comp.*, **26** (4), 346–360. For abstract see Helm. Abs., **20**, No. 69k.]

333—Annales de la Société Belge de Médecine Tropicale.

a. FAIN, A., 1951.—"Les mollusques transmetteurs de *Schistosoma mansoni* au lac Albert." 31 (4), 423–439. [Flemish summary pp. 434-435.]
b. JANSSEN, P., 1951.—"Note préliminaire sur l'emploi d'un dérivé du thioxanthone dans le traitement de la bilharziose intestinale." 31 (4), 441–445. [Flemish summary p. 445.]
c. LAGRANGE, E., 1951.—"Essai de lutte biologique contre les planorbes." 31 (4), 447–449. [Flemish summary p. 449.]
d. DRESSE, A., 1951.—"Remarques au sujet de la note de J. Schwetz : Recherches sur las bilharziose dans l'agglomération d'Elisabethville." 31 (5), 523–524.
e. FAIN, A., 1951.—"*Lymnaea* (*Radix*) *natalensis undussumae* von Martens transmetteur naturel de *Fasciola gigantica* Cobbold au Congo Belge. Reproduction expérimentale du cycle évolutif de cette douve." 31 (5), 531–539. [Flemish summary pp. 538–539.]
f. CHARDOME, M. & PEEL, E., 1951.—"Une nouvelle filaire chez l'homme au Congo Belge : *Tetrapetalonema berghei*, n.sp." 31 (6), 571–577, 580. [Flemish summary p. 577.]
g. BERGHE, L. VAN DEN, 1951.—"Remarques sur *Tetrapetalonema berghei* Chardome et Peel." 31 (6), 577–579.

(333a) A study of 21 species of molluscs collected in and around Lake Albert showed that only *Biomphalaria alexandrina pfeifferi* and *B. a. stanleyi* were vectors of *Schistosoma mansoni*. The former, which is by far the most important, inhabits the small rivers and streams of the plain surrounding the lake. *B. a. stanleyi* is exclusively lacustrine and is morphologically very variable, and, as well as typical forms, Fain found many specimens having the appearance of *B. a. choanomphala* (the name given by Courtois & Wanson to the small snails they found infected with *S. mansoni* in 1949). According to Bequaert the true *B. a. choanomphala* does not exist at Lake Albert. In Fain's collection all stages in the transition between *B. a. stanleyi* and the small form or race *choanomphala* were found. P.M.B.

(333b) Janssen estimates that 90% of 175 non-acute African cases of schistosomiasis mansoni were cured with a total dose of 7·2 gm. of "Tixantone" (miracil-D) for adults, or 1·2 gm. to 4·8 gm. for children, according to age, given over six days. The results of treating 641 adults and 655 children are not yet available. Toxic effects, though temporarily severe in some cases, did not persist after the end of treatment. Janssen considers that the examination of 8–10 slides, made by direct smear from a faecal sample passed about 24

hours after an intravenous injection of 2 gm. of Bayer 205, gives as good results as rectal biopsy. P.M.B.

(333c) Laboratory experiments proved that larval pleurodele newts ate young *Planorbis glabratus* and the adults ate fully grown snails. Although these newts are not at present found in Central Africa, it is suggested that they might possibly be introduced in a campaign against schistosomiasis. P.M.B.

(333d) Dresse, criticizing Schwetz for giving the impression in his paper on schistosomiasis at Elisabethville [for abstract see Helm. Abs., **20**, No. 171a] that little or no action was being taken by the Service de l'Hygiène, refers to his own report dated 1st April 1950, in which he stated that the probable source of infection in Europeans had been traced and that 3,933 Planorbis had been examined during March 1950. By 1st August 1950 this number had been increased to 14,968. P.M.B.

(333e) By experimental infection of guinea-pigs, mice, sheep and goats with cercariae of *Fasciola gigantica* (*Cercaria pigmentosa*) from *Limnaea natalensis undussumae*, Fain has demonstrated the complete life-cycle. Miracidia hatched from the 24th to the 38th day from eggs removed from gravid specimens, reaching a maximum number on about the 30th day. When laboratory-bred *L. n. undussumae* were infected with these miracidia, young cercariae enclosed in rediae were found in the hepato-pancreas on the 35th day, but cercariae did not emerge until the 51st to 55th day, when the number discharged varied from 1 to 30 per day. Six weeks later 5 to 75 per day were counted. Adult gravid flukes were found in the definitive hosts 90–100 days after infection. *L. n. undussumae* infected with *F. gigantica* were found in 8 out of 12 streams near Blukwa in the Ituri region of the Belgian Congo, where they are very frequent in slow-flowing streams and in marshes and ponds. *L. truncatula*, *Segmentina kanisaensis*, *Biomphalaria alexandrina pfeifferi* and *Gyraulus natalensis* were not found infected. P.M.B.

(333f) To the seven species of the filariid genus *Tetrapetalonema* hitherto known only from monkeys, Chardome & Peel add *T. berghei* n.sp. from the bladder wall of a patient autopsied at Coquilhatville in the Belgian Congo. Only a single adult female 60·9 mm. long was recovered. Its tail had the four excrescences characteristic of the genus. The microfilaria had no sheath and measured 171μ to 184μ by 3·55μ. The nuclei stand out clearly and are oval in shape. The measurements of the females of the eight species are contrasted in a table. A second table gives the various measurements of the microfilariae of *T. berghei* and *Acanthocheilonema perstans*. R.T.L.

(333g) Berghe points out that as the differences between the microfilariae of *Tetrapetalonema berghei* and *Acanthocheilonema perstans* can only be detected by special methods, it is possible that infections with the former may have been masked by those of the latter in double infections. R.T.L.

334—Annales Universitatis Mariae Curie-Skłodowska, Lublin.

a. MICHAJŁOW, W., 1951.—" 'Stadialność' rozwoju niektórych tasiemców (Cestoda). (Uderzająca analogia biologiczna.)" Sectio C, **6** (3), 77–147. [English & Russian summaries pp. 116–147.]

b. FURMAGA, S. & WYSOCKI, E., 1951.—" Helmintofauna lisów województwa lubelskiego." Sectio DD, **6** (1/5), 97–123. [English & Russian summaries pp. 122–123.]

(334a) From a series of controlled observations on the effect of various environmental factors on the egg and free-living and parasitic larval stages of pseudophyllid cestodes, Michajlow concludes that there is a striking analogy between the phasic development of tapeworms and that of higher plants as outlined by Lysenko. He found that coracidia lived longer under normal conditions than had been hitherto supposed. S.W.

(334b) Drawings and short descriptions are given of the following helminths which were recovered at autopsies on 68 wild foxes (*Canis vulpes*) killed in the Lublin Palatinate:

Alaria alata, Euparyphium melis, Mesocestoides lineatus, Taenia sp., *T. crassiceps, T. hydatigena, T. multiceps, T. polyacantha, T. taeniaeformis, Capillaria plica, Crenosoma vulpis, Eucoleus aerophilus, Oxyuris* sp. (?), *Toxocara canis, Trichinella spiralis, Uncinaria stenocephala.* R.T.L.

335—Annali d'Igiene.

*a. BUCNEV, K. N., 1951.—"Sul formolvaccino semiliquido di Murontsev contro la rosolia dei suini." 60 (3), 138–144.

336—Annali Italiani di Chirurgia.

a. GROSSI, T. & MINI, M., 1951.—"La soluzione G nella terapia delle cisti da echinococco calcificate." 28 (1/2), 49–58.

(336a) Grossi & Mini describe a case in which a solvent was introduced, after drainage, into a heavily calcified hydatid cyst of the liver. The solvent action enabled large fragments of calcareous material to be easily removed from the cyst, thus simplifying subsequent treatment. P.M.B.

337—Annali della Sperimentazione Agraria.

a. CICCARONE, A. & RUGGIERI, G., 1951.—"Relazione su prove preliminari di pieno campo per la lotta contro i parassiti del terreno." New series, 5 (5), 1063–1078. [English summary p. 1077.]

(337a) In the dry sandy soil of Vittoria, Sicily, irrigation has led to *Heterodera marioni* becoming a serious pest, especially of tomatoes and french beans, galls being found up to 50 cm. deep. Ciccarone & Ruggieri have tested on a field scale the following nematicides: chloropicrin at 9 Hl./Ha., D-D mixture and ethylene dibromide (as Bromofume) at 15 Hl./Ha., carbon disulphide at 25 metric quintals/Ha., 15% benzene hexachloride at one metric quintal/Ha., and 25% parathion at 0·75 metric quintal/Ha. Results (measured as degree of galling in subsequently planted beans, dry weight of plants, weight of crop, and degree of control of the weed *Cyperus rotundus*) favoured the four fumigants. D-D killed most eelworms but was somewhat phytotoxic, so that ethylene dibromide gave the heaviest crop. By all four criteria, the parathion and benzene hexachloride gave very poor results. B.G.P.

338—Annals of Applied Biology.

a. ELLENBY, C., 1951.—"Mustard oils and control of the potato-root eelworm, *Heterodera rostochiensis* Wollenweber. Further field and laboratory experiments." 38 (4), 859–875.

(338a) In laboratory hatching tests with mustard oils in high dilution in potato diffusate, Ellenby has confirmed that allyl isothiocyanate inhibits the emergence of *Heterodera rostochiensis* larvae from cysts, emergence decreasing with increasing oil concentration. Phenethyl isothiocyanate is not significantly superior to the former, and the synthetic phenyl isothiocyanate appears rather to stimulate emergence. Field trials in which the oils were sorbed on peat (or less effectively on talc), showed significant increases in the yields of tubers without concurrent increases in the cyst density. B.G.P.

339—Annals and Magazine of Natural History.

a. MANN, K. H., 1951.—"On the bionomics and distribution of *Theromyzon tessulatum* (O.F. Müller), 1774. (=*Protoclepsis tesselata*)." Ser. XII, 4 (46), 956–961.

(339a) Several examples of *Theromyzon tessulatum* were found in the nasal cavities of ducklings which had died on a farm near Wantage in Berkshire. Very little has been recorded concerning this leech although it is now shown to be widely distributed in Britain. Infections may cause death in young birds but those over six months old are able to withstand a fairly heavy infestation without showing marked ill effects. R.T.L.

340—Annals of Tropical Medicine and Parasitology.

a. GORDON, R. M. & GRIFFITHS, R. B., 1951.—"Observations on the means by which the cercariae of *Schistosoma mansoni* penetrate mammalian skin, together with an account of certain morphological changes observed in the newly penetrated larvae." **45** (3/4), 227–243.

b. KERSHAW, W. E., 1951.—"Studies on the epidemiology of filariasis in West Africa, with special reference to the British Cameroons and the Niger delta. II.—The influence of town and village evolution and development on the incidence of infections with *Loa loa* and *Acanthocheilonema perstans*." **45** (3/4), 261–283.

(340a) In the cercaria of *Schistosoma mansoni* there is a pair of small, very finely granular, slightly basophilic glands with nuclei markedly smaller than those of the anterior and posterior cephalic glands. As they have disappeared by the time the cercaria is free from the molluscan host they are believed to be "escape glands". There are five pairs of cephalic glands, two anterior and three posterior. Other authors have reported four, five or six. The cercaria only occasionally enters the skin by the hair follicles but normally pierces the most superficial layers of the stratum corneum. Thereafter the cercaria ceases to burrow and pushes its way between the layers of the stratum corneum. During this stage the contents of the anterior cephalic glands are ejected and the tail is discarded. The cercaria then becomes active again and turns down vertically, pushing between the epidermal cells into the dermis. This phase is associated with the emptying of the contents of the posterior cephalic glands. This probably causes the clear zone often observed around the cercaria in the stratum malpighii and cutis vera. R.T.L

(340b) Kershaw discusses the three evolutionary stages of radiation, adaptation and fine adjustment with particular reference to filariae. He concludes that *Loa loa* has reached the final stage of fine adjustment and *Wuchereria bancrofti* is at the stage of radiative variation. He has carried out a survey of the incidence of *L. loa* (and also *Acanthocheilonema perstans*) in three villages in the rain forest of the Cameroons, an artificial village in a rubber estate, and in three schools in two parts of Kumba, a developing market town. In the rain forest villages, the incidence in men and women is not significantly different; in the artificial village where the men are exposed to infection while tapping the rubber trees, but the women spend most of their time in the clearing, the incidence in the women is extremely low; in Kumba, children at a school near the rain forest show a much higher incidence than those at a school which is separated from the rain forest by a wide belt of farm mosaic and broken forest. From these observations, it appears that changes in the environment produce alterations, which are sustained, in the degree of human infection with *L. loa* and *A. perstans*. S.W.

341—Année Biologique.

a. BUTTNER, A., 1951.—"La progenèse chez les trématodes digénétiques. Sa signification. Ses manifestations. Contribution à l'étude de son déterminisme." 3e Série, **27** (3), 221–226.

†b. GUNHOLD, P., 1951.—"La biocénose des métazoaires dans les excréments de bovins." 3e Série, **27** (4), 261–263.

†c. SACHS, H., 1951.—"La faune des nématodes des bouses de vaches." 3e Série, **27** (4), 263–265.

†d. SACHS, H., 1951.—"Révision des Bunonematinae." 3e Série, **27** (4), 265–266.

(341a) [This is an abstract of a thesis. For abstracts of published parts see Helm. Abs., **19**, No. 274i, **20**, Nos. 6a, 69a, 69g.]

(341b) Gunhold has studied the metazoan fauna found in cattle faeces at different times after deposition. Nematodes are among the first to establish themselves; as the faeces dry they migrate downwards, finally passing into the adjacent soil. S.W.

(341c) [A fuller account of this paper appears in *Zool. Jahrb.*, Abt. 1, 1950, **79**, 209–272.]

† Abstract of paper presented to the Colloque International du Centre National de la Recherche Scientifique sur l'Ecologie, Paris, February 20–25, 1950.

(341d) [A fuller account of this paper appears in *Zool. Jahrb.*, Abt. 1, 1949, **78**, 323–366. For abstract see Helm. Abs., **18**, No. 289a.]

342—Anzeiger für Schädlingskunde.

a. MENDHEIM, H., 1951.—"Zwischenwirte und Infektionsmodus beim Rattenbandwurm *Hymenolepis diminuta* (Rudolphi 1819) nebst einigen Bemerkungen über die von Eichler aufgestellte Szidat'sche und Fahrenholz'sche Regel." **24** (6), 89–91.

(342a) Mendheim records a case of *Hymenolepis diminuta* infection in man in Germany and states that he has found only two other such cases in the literature. He takes the opportunity to list the 28 known intermediate hosts of this parasite and discuss in general terms the question of host-parasite relationship. The so-called "Szidat-Fahrenholz Law" formulated by Eichler in 1942 does not always explain the relationship, as ecological and physiological conditions often play a more important role than phylogenetic factors in the selection of intermediate hosts. In the case of *H. diminuta*, with its great variety of intermediate hosts, it is not possible to differentiate between principal, secondary and accidental hosts in Eichler's sense. A.E.F.

343—Arbeiten aus der Medizinischen Fakultät Okayama.

a. YAMAGUTI, S., 1951.—"Studies on the helminth fauna of Japan. Part 44. Trematodes of fishes, IX." **7** (4), 247–282.
b. YAMAGUTI, S., 1951.—"Studies on the helminth fauna of Japan. Part 45. Trematodes of marine mammals." **7** (4), 283–294.
c. YAMAGUTI, S., 1951.—"Studies on the helminth fauna of Japan. Part 46. Nematodes of marine mammals." **7** (4), 295–306.
d. YAMAGUTI, S., 1951.—"Studies on the helminth fauna of Japan. Part 47. Cestodes of marine mammals and birds." **7** (4), 307–314.
e. YAMAGUTI, S., 1951.—"Studies on the helminth fauna of Japan. Part 48. Trematodes of fishes, X." **7** (4), 315–334.
f. YAMAGUTI, S., 1951.—"Early stages of postembryonic development of *Nippotaenia chaenogobii* Yamaguti, 1939 (Cestoda)." **7** (4), 335–337.
g. YAMAGUTI, S., 1951.—"Zur Entwicklungsgeschichte von *Echinochasmus japonicus* Tanabe, 1926, mit besonderer Berücksichtigung der Struktur der Cercarie." **7** (4), 338–342.

(343a) In this further contribution to the trematodes of fishes in Japan, Yamaguti describes 23 species of which 13 are new and one of these, *Octotestis iseensis* n.g., n.sp. from *Spheroides niphobles*, is type of a new genus of Monorchidae. It is characterized by the presence of 8 testes and by the structure of the terminal genitalia. The other new species are: *Plagioporus acanthogobii* n.sp. from *Acanthogobius hasta*, *P.* (*Caudotestis*) *spari* n.sp. from *Sparus longispinis*, *P.* (*C.*) *azurionis* n.sp. from *Choerodon azurio*, *P.* (*C.*) *dorosomatis* n.sp. from *Dorosoma thrissa*, *Decemtestis takanoha* n.sp. from *Goniistius zonatus*, *Opecoelus nipponicus* n.sp. from *Caranx equula* et al., *O. himezi* n.sp. and *Lasiotocus himezi* n.sp. from *Upeneoides bensasi*, *Notoporus carangis* n.sp., *Stephanochasmus carangis* n.sp., *Echinostephanus pacificus* n.sp. and *Phyllodistomum pacificum* n.sp. from *Caranx equula*. The various characters of the eight species which now comprise the genus *Phyllodistomum* are tabulated. R.T.L.

(343b) Of the six trematodes found by Yamaguti in marine mammals, four are new, viz., *Hadwenius nipponicus* n.sp. and *Nasitrema dalli* n.sp. in *Phocaenoides dalli* in which *Campula oblonga* also occurred, *N. sunameri* n.sp. in *Neomeris phocaenoides* and *Nasitrema gondo* n.sp. in *Globiocephalus scammoni*. The generic diagnosis of *Nasitrema* is emended and a new family Nasitrematidae is created with *N. spathulatum* as type species. R.T.L.

(343c) Yamaguti contributes descriptions of six new species to our knowledge of the nematode fauna of marine mammals in Japan: *Contracaecum callotariae* n.sp. and *Porrocaecum callotariae* n.sp. from *Callotaria ursina*, *Irukanema dalli* n.g., n.sp. and *Halocercus dalli* n.sp. from *Phocaenoides dalli*, *H. sunameri* n.sp. and *Pseudostenurus sunameri* n.g., n.sp. from *Neomeris phocaenoides*. *Irukanema* n.g. differs from *Torynurus*

in the precloacal sucker-like organ, bursal rays, spicules, vulvar bosses and especially in the possession of a definite buccal capsule. *Pseudostenurus* n.g. has a strongly crooked posterior end in the male and lateral cuticular swellings in the prevulvar region of the female which differentiate it from *Stenurus*. R.T.L.

(343d) From marine mammals and birds in Japan, Yamaguti describes four species including *Tetrabothrius dalli* n.sp. from *Phocaenoides dalli* and *Diphyllobothrium colymbi* n.sp. from *Colymbus stellatus*. *T. dalli* differs from *T. delphini* in that the suckers possess inconspicuous auricular lobes and there are fewer testes in front of the uterus. *D. colymbi* differs from *D. ditremum* only in body size, from *D. dendriticum* in fewer proglottides in relation to the length of the strobila and from *D. canadense* in the greater number of testes, in the pre-equatorial position of the uterine pore and in the size of the eggs. R.T.L.

(343e) To our knowledge of the trematodes of fishes in Japan, Yamaguti contributes three new species. All live in cysts of different shapes in the wall of the pyloric caeca of *Auxis thazard*. Each represents a new genus. *Colocyntotrema auxis* n.g., n.sp. is characterized by the general shape of the cyst in which it is enclosed, the single testis and the complete fusion of the hind bodies of the two occupants of a cyst. *Phacelotrema claviforme* n.g., n.sp. differs from other Didymozoidea by the shape of the cyst and the bundled columns of which the hind body is composed. *Opepherotrema planum* n.g., n.sp. is characterized by the complete fusion of the hind bodies in the form of an irregularly outlined disc and by the presence of a central hole in which the forebodies are enclosed. All the reproductive organs are single. R.T.L.

(343f) *Nippotaenia chaenogobii* was described by Yamaguti in 1939 as belonging to a new order of the Nippotaeniidea which is intermediate between the Pseudophyllidea and the Cyclophyllidea. In the present note it is shown that the early stages of the postembryonic development are pseudophyllid but the embryophore is cyclophyllidean. The onchospheres develop into elongated procercoids in the body-cavity of *Diaptomus*. Two weeks after infection the tail drops off. R.T.L.

(343g) *Echinochasmus japonicus* develops into rediae and cercariae in *Bulinus striatulus japonicus*. The free-swimming cercaria is described in detail and is figured. It encysts in the gills of *Pseudorasbora parva*, gold-fish and *Rana rugosa* tadpoles. In the second week after administration of cysts to a duck, well developed worms were obtained. A specimen of *Nycticorax n. nycticorax* from the Biwa Sea was found infected and well developed worms were also collected from a *Milvus migrans lineatus* which had been fed on a naturally infected *Pseudorasbora parva*. R.T.L.

344—Archiv für Hygiene und Bakteriologie.

a. TRUB, C. L. P. & GAASE, A., 1951.—"Eine Gruppenerkrankung und eine Epidemie an Trichinose und ihre Lehren für die Verhütung und Bekämpfung der Trichinose." 134 (3), 163–172. [English & French summaries pp. 171–172.]

b. JETTMAR, H. M. & EXNER, H., 1951.—"Thermoresistenzversuche an Ascaris- und Trichuris-Eiern." 134 (3), 173–186. [English & French summaries pp. 185–186.]

(344a) Trub & Gaase discuss two 1950 outbreaks of trichinelliasis (which have been fully described elsewhere) with particular reference to serological diagnosis of infection in man and in pigs. The first outbreak (Duren, Rhineland) affected 21 persons, with three deaths: complement fixation, precipitin and intradermal tests were carried out on 16 of the infected persons, and 11 of these were positive to one or more tests (4 of the negatives had light infections): 10 persons who were not ill but who had eaten the suspected pork were positive to either complement fixation or precipitin tests and were classed as latent infections. The second outbreak (at Meschede, Westphalia) affected 436 persons, with no deaths: 417 were given serological tests and 372 were positive. One hundred and eight

persons who had consumed meat from the infected source but were not ill were all positive to complement fixation. After a careful study of the sources of infection in both these outbreaks the authors conclude that normal Trichinella inspection does not necessarily reveal all light infections and they recommend improved methods, especially serological diagnosis. A.E.F.

(344b) Jettmar & Exner have studied the effects of heat on ova of *Ascaris lumbricoides*, *Parascaris equorum* and *Trichuris trichiura*. Damp heat at 70°, 80° and 90°C. killed all eggs in two seconds; at 60°C. all eggs were dead after 25–30 seconds; at 55°C. most *Parascaris equorum* ova were killed in from 20 to 60 seconds while the other two species survived in some cases up to 200 seconds; *P. equorum* ova survived in damp heat at 50°C. for from 6¾ to 30 minutes and ova of the other species survived sporadically up to as long as 2 hours; at lower temperatures down to 45°C. ova were still developing after 19 hours. Dry heat (tested on *P. equorum* only) killed all ova in 20 minutes at 55°C. and in 8 hours at 46°C. Repeated freezing and thawing of *P. equorum* and *T. trichiura* ova (up to 20–30 times) finally destroyed them. After exposure to direct sunlight in June for four hours all *A. lumbricoides* ova were dead, but in August after eight hours exposure 55% developed motile larvae. A.E.F.

345—Archivo di Chirurgia del Torace.

a. STIPA, F. & D'ONOFRIO, G., 1951.—"Cisti di echinococco del mediastino." **7**, 215–218.

346—Archivio Italiano di Scienze Mediche Tropicali e di Parassitologia.

a. URSO, B. & ROSSI, G., 1951.—"Rilievi statistici e parassitologici su 20,000 esami di feci." **32** (4/5), 433–442.
b. ORLANDI, A., 1951.—"Ricerche sull'anchilostomiasi nella popolazione rurale di Milano." **32** (4/5), 544.
c. CASULA, D. & CAU, A., 1951.—"Alcuni rilievi sulla prova di deviazione del complemento applicata alla diagnosi dell'echinococcosi." **32** (4/5), 553–556.
d. RICCI, M., 1951.—"La trichinosi in Italia." **32** (6), 602–612. [English, French & German summaries pp. 611–612.]
e. BASNUEVO, J. G., COWLEY CHÁVEZ, O., SOTOLONGO, F., BLANCO RABASSA, E. & ACHKAR, R., 1951.—"Una nuova terapia della tricocefalosi." **32** (10), 1022–1027. [English, French & German summaries pp. 1026–1027.]

(346a) Urso & Rossi summarize in 15 tables the helminth and protozoan infections found in 20,000 faecal examinations at Rome between 1937 and 1950. The helminths mentioned are Ascaris, Enterobius, Trichuris, Ancylostoma, Strongyloides, *Taenia saginata*, *T. solium* and *Hymenolepis nana*. P.M.B.

(346b) Between the years 1937 and 1942 Orlandi found that hookworm was present in 2,675 out of 37,975 of the rural population of Milan. P.M.B.

(346c) Casula & Cau consider that deviation of the complement can be of considerable value in the serological diagnosis of hydatid, provided that the test is carried out with fresh, potent antigen. In 30 known cases 18 tests gave strong positive reactions, six weak positives and six negatives. P.M.B.

(346d) Ricci summarizes literature on the occurrence of trichinosis in Italy and Sicily since 1865 and quotes from an unpublished report by Nurzia & Sulli on an outbreak of about 80 mild cases in Rome in 1948, of which the origin was not traced. He concludes that it is doubtful whether trichinosis is endemic in Italy, although it is considered to be so in Sicily around Montemaggiore and possibly in the Palermo district. P.M.B.

(346e) [This is an Italian translation of a paper published in *Rev. Kuba Med. trop. Parasit.*, 1951, **7**, 57–59. For abstract see No. 554a below.]

347—Archivos Médicos de San Lorenzo. Habana.

a. BASNUEVO, J. G. & COWLEY CHÁVEZ, O., 1951.—" Los enemas de hexilresorcinol en el tratamiento de la oxyuriasis." 2 (5), 580–583.

(347a) Three cases of enterobiasis cured with enemas of hexylresorcinol are described. The remaining information is the same as that given in *Rev. Kuba Med. trop. Parasit.*, 7 (5/6), 74–75. [For abstract see No. 554d below.] P.M.B.

348—Archivos de Pediatría del Uruguay.

a. RIAL, B., GOMENSORO, C. & CHAPPE, W., 1951.—" Distomatosis hepática humana (por *Fasciola hepatica*). (3 observaciones en el niño y 1 en adulto). Infección masiva familiar. Síndromo de hepatitis aguda anicterica con eosinofilia masiva. Estudios clínico y epidemiológico." 22 (4), 257–270 ; (5), 373–384 ; (6), 459–471.

349—Archivos de la Sociedad Oftalmológica Hispano-Americana. Madrid.

a. ESTEBAN, M., 1951.—" Algunas consideraciones acerca de las filariasis." 11 (4), 406–424.

(349a) In giving an account of the pathogenicity of *Loa loa*, *Wuchereria bancrofti* and *Onchocerca volvulus* from the ophthalmological viewpoint, Esteban describes a case of loaiasis of several years' duration, in which a male *Loa loa* was removed from the prelachrymal area of a man who had lived for a number of years in Spanish Guinea. He summarizes various published results of treatment with hetrazan. P.M.B.

350—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

a. ARDAO, H., 1951.—" El quiste hidático del hígado fistulizado en los bronquios. Estudio anatómico." 38 (3), 164–169. [Discussion pp. 169–173.]
b. LARGHERO YBARZ, P., 1951.—" Equinococosis heterótopica pleural." 38 (3), 195–200.
c. ARMAND UGÓN, C. V., 1951.—" Quiste hidático del pulmón. Resultados operatorios." 38 (3), 201–207. [Discussion pp. 207–208.]

351—Archivos Venezolanos de Nutrición.

a. LAYRISSE, M., 1951.—" Estudios preliminares del tratamiento de las anemias ferroprivas en los anquilostomosos con la asociación de hierrocobalto." 2 (1), 125–138. [English & German summaries p. 137.]

(351a) In eight cases of ancylostomiasis the symptoms of severe hypochromic anaemia, of which four were hypoplastic and four hyperplastic, were relieved much sooner by oral treatment with cobalt-iron than with iron alone. R.T.L.

352—Arctic. Montreal.

a. RAUSCH, R., 1951.—" Observations on a cyclic decline of lemmings (*Lemmus*) on the Arctic coast of Alaska during the spring of 1949." 3 (3), 166–177.

(352a) Helminth parasitism in lemmings in the Point Barrow region on the Arctic coast of Alaska is light as compared with that usually found in microtine rodents. There was no apparent increase under conditions of high population density. The species noted were *Andrya primordialis*, *Hymenolepis horrida*, *Paranoplocephala infrequens* and *Cysticercus tenuicollis*. R.T.L.

353—Arizona Medicine.

a. GREENE, R. A. & BREAZEALE, E. L., 1951.—" The incidence of *Trichinella spiralis* infections in an asymptomatic group, as indicated by the Kline test." 8 (5), 36–37.

(353a) When trichinella infections occur sporadically they are usually overlooked. By using the slide test of Suessenguth & Kline, Greene & Breazeale obtained a positive reaction in 10% of 1,000 sera taken from residents of Arizona in whom trichinella infection

had not been suspected. In 3·2% the reaction was doubtful. They conclude that although relatively few cases of clinical trichinosis have been reported in Arizona, the incidence of this infection is at least as great as in other parts of the U.S.A. R.T.L.

354—Arkiv för Zoologi.

a. ALLGÉN, C. A., 1951.—"Westschwedische marine litorale und terrestrische Nematoden." Ser. 2, 1 (4/5), 301–344.

(354a) Allgén deals with marine and brackish-water nematodes obtained from a number of mud and alga samples taken on the west coast of Sweden. Of the 41 species found belonging to 26 genera *Camacolaimus papillosus* n.sp. is new to science. Soil nematodes were obtained from samples taken close to the shore line and the 90 specimens found belonged to 8 different genera and 21 species, of which the following are new to science: *Dorylaimus odhneri* n.sp., *Cephalobus heterospiculum* n.sp. and *Rhabditis suecica* n.sp. T.G.

355—Arquivos Brasileiros de Cardiologia.

a. BARBATO, E., PINTO LIMA, F., COTRIM, E., MERLINO, G. & MORAES DANTAS, O., 1951.—"Aspectos particulares da artéria pulmonar na esquistossomose mansoni. Importância no diagnóstico diferencial com as cardiopatias congênitas." 4 (2), 233–242. [English & Spanish summaries p. 241.]

356—Arquivos de Clínica. Rio de Janeiro.

a. CARVALHO, A. DE A., BRAGA, N. DE P., STRAUSS, A., ARMINANTE, H., ALTENHEIN, D., ROCHA, H. S. & VIEIRA, P. B., 1951.—"Anemia ancilostomótica na criança." 12 (3), 216–224.

(356a) While it is generally accepted that hookworm anaemia in adults is due to iron deficiency resulting from haemorrhage caused by the worms, the authors quote a case which suggests that this view does not necessarily apply to children as careful dieting, administration of iron and blood transfusion did not cure the patients while worms were still present. R.T.L.

357—Arquivos de Zoologia do Estado de São Paulo.

a. TRAVASSOS, L., 1951.—"O gênero *Pulchrosoma* Travassos, 1916 e sua situação no sistema de trematódeos." 7, 465–492.

(357a) To establish the exact position of the genera *Pulchrosoma* and *Cathaemasia* (considered by various authors to be identical), Travassos has undertaken a study of the Cathaemasiidae in which he includes the subfamilies Cathaemasiinae, Ribeiroiinae and Mehlisiinae. *Pulchrosoma* has two species, *P. pulchrosoma* and *P. reticulata*. Two new families of Echinostomatoidea are created, Chaunocephalidae with *Chaunocephalus* as its type genus and Balfouriidae with *Balfouria*; the division is based on the relative extent of the vitellaria. P.M.B.

358—Arzneimittel-Forschung. Aulendorf.

a. BROCK, N. & ERHARDT, A., 1951.—"Zur Pharmakotherapie der Oxyuriasis I. Pharmakologische, toxikologische und chemotherapeutische Untersuchungen mit Pararosanilinfarbstoffen und ihren Carbinolbasen." 1 (1), 5–21.

b. BROCK, N. & GEKS, F. J., 1951.—"Die Bestimmung der therapeutischen Breite von Arzneimitteln. Zur Pharmakotherapie der Oxyuriasis (Pararosanilinderivate) II." 1 (2), 63–72.

(358a) Brock & Erhardt review the literature and give the results of their own investigations on the pharmacology, toxicology and therapeutic value of the para-rosaniline dyes (crystal violet, methyl violet and malachite green) and their carbinol bases in the treatment of *Passalurus ambiguus* infection in rabbits. The ratio of "average therapeutic dose" to "average lethal dose" was as follows: crystal violet, 1:3·4; methyl violet, 1:2·35; malachite green, 1:1·2; carbinol base of crystal violet, 1:12·4. The ratio of therapeutic

dose in 95% of cases to lethal dose in 5% of cases (which is preferred as a "therapeutic index") was: crystal violet 1:0·67; methyl violet 1:0·57; malachite green 1:0·28; carbinol base of crystal violet 1·4·05. The authors conclude that the carbinol base of crystal violet is by far the most promising of the para-rosaniline dyes in the treatment of oxyurid infections. A.E.F.

(358b) Brock & Geks discuss the statistical evaluation of the chemotherapeutic trials with para-rosaniline dyes against oxyurid infections described in the preceding abstract. They conclude that the "therapeutic breadth" of a drug is most accurately expressed by a therapeutic index based on the ratio of "therapeutic dose in 95% of cases" to "lethal dose in 5% of cases" (expressed as DC_{95}/DL_5). The authors propose that this should be known as the "Ehrlich index" in honour of Paul Ehrlich who in 1910 introduced the expression "chemotherapeutic index". A.E.F.

359—Australian Journal of Marine and Freshwater Research.

a. DICKINSON, P., 1951.—" Stomach contents of New Zealand inland shags." 2 (2), 245–253.

(359a) In three *Phalacrocorax carbo* from the Rotorua-Taupo region of New Zealand large numbers of nematodes, probably *Contracaecum spiculigerum*, were found free in the stomach, and *Eustrongylides ignotus* was encysted in the stomach wall. R.T.L.

360—Australian Journal of Scientific Research. Series B, Biological Sciences.

a. MASSEY, V. & ROGERS, W. P., 1951.—" Conditions affecting the action of fluoroacetate on the metabolism of nematode parasites and vertebrate animals." 4 (4), 561–574.
b. ESSERMAN, H. B. & SAMBELL, P. M., 1951.—" The uptake of radio-active phosphate by nematode parasites and by tissues of the sheep." 4 (4), 575–580.

(360a) Massey & Rogers found that the inhibition of citrate formation in brei prepared from *Nematodirus* spp. and pigeon breast muscle was influenced by the addition of oxygen carriers, by the oxygen tension and by the redox potential. Thus in brei of pigeon breast muscle, when the Eh was kept at levels below +50 mV. by electrolysis, 0·01M fluoroacetate caused inhibitions of 0·25%; at levels above −120 mV. the inhibition ranged from 65%–100%. Studies on the effects of incubating fluoroacetate-poisoned brei in different gas mixtures on the subsequent development of inhibition supported the hypothesis that fluoroacetate condenses with oxaloacetate to form the actual inhibitor. Both the formation of the inhibitor and the inhibiting reaction were increased in the presence of oxygen. W.P.R.

(360b) Esserman & Sambell have examined the relative rates of uptake of radioactive phosphate by the tissues of sheep and their parasites. *Trichostrongylus* in the small intestine accumulated phosphate more rapidly than did the small intestine of the host when the labelled phosphate was injected into the abomasum; after intravenous injection the uptake of the parasites was similar to that of the small intestine. Phosphate uptake by *Haemonchus contortus* showed an appreciable rise eight hours after both intra-abomasal and intravenous injections, whereas by this time the phosphate content of the host's abomasal tissues was decreasing. *Oesophagostomum columbianum* absorbed less phosphate than the tissues of the host's rectum up to four hours after both methods of dosing but from that period showed a rise which was somewhat variable. The authors concluded that these results suggest that the parasites feed on the tissues of the host and not on the contents of the alimentary tract. W.P.R.

361—Australian Plant Disease Recorder.

a. BROCK, R. D., 1951.—" Resistance to root-knot nematode in tomatoes and beans. 3 (2), 25. [Mimeographed.]

(361a) Trials at Red Cliffs in Victoria on an area of Barmera Sands heavily infected with *Heterodera marioni* have confirmed the resistance of the tomato HES 3963 to the

root-knot nematode. Crosses have been made with commercial varieties with the object of increasing the size of the fruit. When tested in the same area the bean variety Alabama No. 1, reported to be resistant to *H. marioni*, showed severe gall formation. R.T.L.

362—Australian Veterinary Journal.

a. ROBERTS, F. H. S., 1951.—" Parasitic gastro-enteritis of cattle, with particular reference to the occurrence of the disease in Queensland." **27** (10), 274–281. [Discussion pp. 281–282.]
b. WHITTEN, L. K. & SALISBURY, R. M., 1951.—" A note on the occurrence of the gapeworm (*Syngamus trachea*) in New Zealand." **27** (11), 291–292.
c. RIEK, R. F., 1951.—" Phenothiazine and nematode parasites of cattle. A correction." **27** (11), 318.

(362a) Roberts summarizes his observations on parasitic gastro-enteritis in cattle in Queensland. It occurs mainly in the coastal and subcoastal regions, especially where the annual rainfall is 40 inches or more. Most outbreaks occur between April and September and usually only young cattle are affected. The important species are *Haemonchus contortus, Bunostomum phlebotomum, Cooperia punctata, C. pectinata* and *Bosicola radiatum.* Serious enteritis is caused by immature paramphistomes. Four graphs indicate the helminth population trends in calves in relation to season of birth, rainfall and temperature. A graph shows the development of resistance to *H. contortus, Cooperia* spp. and *Bunostomum phlebotomum* by a calf and clearly demonstrates that when it occurs it may be directed against one species at a time. It is a normal phenomenon for *Cooperia* spp. to be eliminated several months before the other species attain their maximum abundance. In *H. contortus* the manifestation of resistance does not appear to depend on the degree of infestation with adult worms. Preliminary conclusions are that pasture management is important and that autumn and winter calves are frequently highly resistant to infection by the time they are exposed to the rainy season, whereas spring and summer calves are very susceptible. There is very slow recovery after anthelmintic treatment or through the development of resistance unless the nutritional standard is improved. Anthelmintics give the best results when given as preventive rather than as curative measures. R.T.L.

(362b) No authentic instance of *Syngamus trachea* has hitherto been recorded from New Zealand. Whitten & Salisbury now report its presence in the finches, *Donacola pectoralis* and *Poephila cincta* and in a waxeye, *Zosterops lateralis.* The infected birds were from an aviary in Lower Hutt and had been reared in New Zealand. A pair of worms was also recovered from a *Turdus merula* from Wallaceville. R.T.L.

(362c) Riek corrects the dosage rate at the head of Table 2 of his article "The use of phenothiazine against nematode parasites of cattle with particular reference to the hookworm *Bunostomum phlebotomum* (Railliet, 1900) Railliet, 1902" [for abstract see Helm. Abs. **20**, No. 184a]. It should read 0·1 gm. p.p.b.w. not 0·2 gm. p.p.b.w. as printed. R.T.L.

363—Basteria. Amsterdam.

a. VENMANS, L.A.W.C., 1951.—" Malacologische aantekeningen. 7. *Leucochloridium macrostomum* (Rudolphi)." **15** (3/4), 54–59.

(363a) *Leucochloridium macrostomum* has been recorded in *Succinea pfeifferi* and *S. putris* in the Netherlands on 14 occasions. R.T.L.

364—Bergcultures. Batavia.

a. EMDEN, J. H. VAN, 1951.—" Aantekeningen over enige ziekten en plagen van de thee (aaltjes, Helopeltis en blisterblight)." **20** (9), 152–155, 157, 159, 161, 163, 165, 167. [English summary pp. 165, 167.]

(364a) In these notes on some important pests and diseases of tea, it is stated that rather erratic results were obtained in experiments designed to group the common tea

weeds and leguminous cover crops according to their susceptibility to the same strain of *Heterodera marioni*. As it harms only young plants the danger of carrying this nematode from the nursery to the field is not considered important as it is already present in most tea soils in Java. Stumps are the only safe planting material to use on infected soils. If seedlings are kept for the first three months on soil previously sterilized with steam, better results are obtained. R.T.L.

365—Biodynamica.

a. GEHENIO, P. M. & LUYET, B. J., 1951.—" Effect of a preliminary slight dehydration on the survival of 'vinegar eels' frozen at −77°C." **7** (130), 41–52.

(365a) In 1947 Gehenio & Luyet reported that a high percentage of "vinegar eels" [*Turbatrix aceti*] could survive ultra rapid cooling to very low temperatures if first kept for several hours in concentrated masses in petri dishes with loosely fitting lids. Further experiments are now detailed which seem to show that the "cold hardening" effect previously obtained was due to slow dehydration comparable to that produced by exposure to 95% relative humidity. R.T.L.

366—Biological Bulletin. Woods Hole.

a. MEHLMAN, B. & VON BRAND, T., 1951.—" Further studies on the anaerobic metabolism of some fresh water snails." **100** (3), 199–205.
b. STUNKARD, H. W., 1951.—" Observations on the morphology and life-history of *Microphallus limuli* n.sp. (Trematoda : Microphallidae)." **101** (3), 307–318.

(366a) Several species of pulmonate and operculate fresh-water molluscs when exposed to anaerobic conditions produced volatile acids which were partially excreted into the medium and partly accumulated in the tissues. In *Australorbis glabratus* and *Helisoma duryi* these acids were identified as propionic and acetic acids. Species not resistant to anaerobiosis are apparently killed by the accumulation of lactic acid while resistant forms are better able to tolerate a lack of oxygen owing to the accumulation of less toxic fatty acids rather than lactic acid in their tissues. The carbon dioxide evolved by the snails kept anaerobically is largely of direct inorganic origin. R.T.L.

(366b) Stunkard describes and illustrates *Microphallus limuli* n.sp. Encysted metacercariae were found in the eyes, digestive glands and other organs of 28 *Limulus polyphemus* collected in Pleasant Bay, Orleans, Massachusetts. Kept in sea water the cysts ruptured after two days releasing active larvae which were almost sexually mature. Cysts were fed to a number of experimental animals but only hamsters and mice became infected, and these did not maintain the infection. Mature worms were collected two to four days after feeding the cysts to the animals; the only increase in size which had taken place was in the posterior region and was caused by the development of the uterus and the accumulation of eggs within it. The adults measure 0·26 mm.–0·40 mm. in length by 0·15 mm.–0·20 mm. in greatest width. The cuticula bears imbricated flattened spines which are larger anteriorly and may be absent behind the acetabulum. The anatomy is described in detail. This species is very similar morphologically to *M. claviformis* but is excluded from this species on bionomic features. *Spelophallus* Jägerskiöld, 1908 is suppressed and *S. primus*, the only known species, transferred to *Microphallus* as *M. primus*. Stunkard does not accept the family Maritrematidae Baer, 1943. S.W.

367—Biologie Médicale.

a. JOYEUX, C. & BAER, J. G., 1951.—" Les rapports des helminthes et de leurs hôtes." **40** (4), 230–261.

(367a) Joyeux & Baer bring together our knowledge of the relationships existing between helminths and their hosts. They consider the types of specificity shown by the Acanthocephala, Cestoda, Gordiacea, Nematoda and Trematoda, and by their invertebrate

and vertebrate intermediate and definitive hosts, and discuss the possible evolutionary significance. In addition they review the specificity shown by both larval and adult helminths for particular habitats inside their hosts, and the effects which the biological state of the host, various deficiencies and genetic and other factors may have on the development of the parasite. There is a bibliography of 36 references. S.W.

368—Boletín de Información. Colegios Veterinarios de España.

a. LÓPEZ-NEYRA, C. R., 1951.—" Un capitulo de la lucha antiequinococósica. Manera de evidenciar los perros vectores de equinococosis y su distinción de otras verminosis." Suplemento Cientifico, 5 (22), 1–19.

(368a) López-Neyra gives a general account of factors relating to the control of hydatid disease and provides a key for the differential diagnosis of the helminth eggs and a set of tables for the species of the various genera known to occur in dogs. P.M.B.

369—Boletín de Informaciones Parasitarias Chilenas.

a. ANON., 1951.—" Difilobotriasis en Chile." [Editorial.] 6 (3), 35.
b. TAGLE V., I., 1951.—" Preparación de antigeno polisacárido de membrana de quiste hidatídico para el diagnóstico de la hidatidosis." 6 (3), 36–37. [English summary p. 37.]
c. ANON., 1951.—" Campañas antiparasitarias en Chile." 6 (3), 39–42.
d. PILOTTI, M. & FAIGUENBAUM, J., 1951.—" Sobre las localizaciones del quiste hidatídico." 6 (4), 55–57. [English summary pp. 56–57.]
e. SAN MARTÍN, G. L., 1951.—" Observación clínica sobre esclero-iridociclitis toxi-alérgica ascaridiósica." 6 (4), 57–58.

(369a) Examination of 3,369 persons in the southern lakes area of Chile between the latitudes of 39°S. and 40°S. by the Department of Parasitology, Santiago de Chile, revealed a total of 21 cases infected with *Diphyllobothrium latum*. Plerocercoids were found in 26·9% of 441 fish from the lakes, particularly in *Salmo irideus* and *Salmo fario*. The area between 40°S. and 42°S. is now to be investigated. P.M.B.

(369b) Tagle V. describes the preparation of an antigen from hydatid membranes and scolices, following the method used by Melchor & Campbell for obtaining a polysaccharide antigen from *Trichinella spiralis*. Its diagnostic value is being tested. P.M.B.

(369c) The national campaign for the control of hydatidosis in Chile was extended to Tierra del Fuego in December 1951. Sixteen of the 18 reported cases of trichinosis were confirmed. P.M.B.

(369e) San Martín describes a case in which severe ocular symptoms which were unrelieved by various treatments disappeared after the removal of a number of *Ascaris lumbricoides* by an anthelmintic. P.M.B.

370—Boletín Informativo. Ministerio de Ganadería y Agricultura, Uruguay.

a. POU, M. C., 1951.—" La lucha contra la hidatidosis." 8 (378), 3–4.

371—Boletin Mensual. Dirección de Ganadería, Montevideo.

a. CASSAMAGNAGHI, Jr., A. & BIANCHI BAZERQUE, A., 1951.—" Sobre los trematodos (Trematoda, Rudolphi 1808) que parasitan a los animales domésticos y silvestres del país. (1a. parte)." 32 (1), 26–37.

(371a) The article on the trematode parasites of animals in Uruguay of which this is the first part only, deals with the three species, *Zygocotyle lunatum*, *Echinostoma revolutum* and *Prosthogonimus cuneatus*. Their synonymy, morphology, life-cycle and pathogenicity are briefly summarized. R.T.L.

372—Bollettino Chimico-Farmaceutico.

a. RAVAZZANI, C., 1951.—"Un nuovo ossiurifugo : l'egressina." 90 (4), 149–151.

(372a) Ravazzani summarizes the published results of Eichholtz *et al.* [for abstract see Helm. Abs. 19, No. 306b] and of Copello & Vittone [*Minerva Med.*, 1950, 41, pp. 712–717] of the treatment of enterobiasis with Egressin. R.T.L.

373—Bombay Veterinary College Magazine.

a. RAO, S. R., 1951.—"Acute dysenteric conditions due to schistosome infection in cattle." 2, 52–57.
b. DIXIT, S. G., 1951.—"A brief survey of poultry diseases in the State of Bombay." 2, 73–75.

(373a) Rao draws attention to the scarcity of information on the schistosomes of animals in India and emphasizes the need for further work on them. He describes a fatal case of schistosomiasis in one of a herd of dairy cattle; the eggs found in the faeces resembled those of *Schistosoma mattheei* or *S. bovis*, but the species was not identified. S.W.

374—Brasil-Médico.

a. PACHECO, G. & JANSEN, J., 1951.—"Destruição de cercárias de *Schistosoma mansoni* com sabões associados a matérias corantes." 65 (31/32), 301–304. [Also in English.]

(374a) The dyes acridine orange and brilliant green in dilutions of up to 1:100,000, and the detergents sodium oleate and sodium ricinoleate in dilutions of up to 1:500 were lethal to *Schistosoma mansoni* cercariae in 50 minutes. In less than one hour the cercaricidal action of acridine orange 1:1,000 was increased 200 times, and that of brilliant green 1:100 was increased 5 times by the addition of 10% of an M/10 solution of sodium oleate. In spite of hydrolysis, the activity of a mixture of sodium oleate and acridine orange was maintained for 24 hours in a dilution of up to 1:500,000 and was only slightly reduced by the addition of 20% of organic matter in the form of normal horse serum. These mixtures were ineffective against snails. P.M.B.

375—British Journal of Ophthalmology.

a. HANDOUSA, A., 1951.—"Proptosis caused by hydatid disease." 35 (10), 607–613.

376—British Journal of Pharmacology and Chemotherapy.

a. MANSOUR, T. E., 1951.—"A study of the action of antimonial compounds on the liver fluke (*Fasciola hepatica*) in vitro." 6 (4), 588–592.

(376a) Mansour has recorded kymographically the effect during a period of 90 minutes of tartar emetic, fouadin and neostibosan in 1:1,000 concentrations on the movements of *Fasciola hepatica* in Ringer's solution, and in a mixture of equal parts of Ringer's solution and bovine serum. In a saline medium, all three compounds failed to cause paralysis of rhythmic activity or to prevent the response to amphetamine. Serum initiated a lethal response to tartar emetic only. The fraction of serum causing this action was dialysable through a cellophane membrane against distilled water but not against a saline solution. R.T.L.

377—British Journal of Urology.

a. BEGG, R. C., 1951.—"The insidious schistosome." 23 (2), 166–167.

(377a) Cases of advanced schistosomiasis are often met with, unexpectedly, among the east coast boys in the Transvaal mines. In a case, briefly described, calcification of the bladder was discovered by accident. Local symptoms were absent although there were many eggs in the urine. Begg considers that there must be spontaneous cure in many instances otherwise whole tracts of the Transvaal would be inhabited by chronic invalids. R.T.L.

378—British Veterinary Journal.

a. PIERCY, S. E., 1951.—" A note on canine filariasis." 107 (7), 311–314.
b. GIBSON, T. E., 1951.—" The action of six samples of phenothiazine of varying particle size on pure infestations of *Trichostrongylus axei* in sheep." 107 (9), 377–379.
c. McGAUGHEY, C. A., 1951.—" Necrotising encephalomyelitis of goats in Ceylon (encephalomalacia of goats, goat paralysis). A note on the occurrence of nematode larvae in the brain and spinal cord. 107 (11), 449–451.

(378a) An Alsatian dog in Kenya with a history of progressive loss of condition was found to be infected with *Acanthocheilonema dracunculoides*. There was no evidence of hookworm infection, infectious disease or visible signs of anaemia. Recovery followed a course of five subcutaneous injections of 5 c.c. of a 12% solution of stibophen every four days. Measurements of the microfilariae and of those of *Dirofilaria immitis* which are tabulated show that the total length of the former was 194 μ and of the latter 218–329 μ. There were significant differences also in the spacing of certain fixed points in the larval body. R.T.L.

(378b) The phenothiazine now on sale is not so finely ground as formerly, but experiments with six preparations of different particle sizes on 12 sheep showed that all were highly efficient against *Trichostrongylus axei* when given in full therapeutic doses. The difference in particle size cannot therefore be held responsible for the recently reported decrease in its efficiency in the treatment of parasitic gastritis. R.T.L.

(378c) McGaughey, by careful search of fresh material from the brain and spinal cord of two goats which had suffered from "goat paralysis" (necrotising encephalomyelitis), found nematode larvae (probably of *Setaria digitata*) in the nerve tissue in both cases, thus confirming in Ceylon the findings of Yamagiwa, Shoho and Tanaka (1941–47) in Japan. R.T.L.

379—Bulletin de l'Académie Nationale de Médecine. Paris.

a. CHIRAY, 1951.—" A propos d'une offensive métropolitaine récente de l'ankylostomiase et de l'amibiase." 3e Série, 135 (11/12), 221–222. [Discussion pp. 222–223.]

(379a) Chiray states that the danger of ancylostomiasis spreading in France has increased greatly during recent years. He stresses the need for the enforcement of active control measures and for the compulsory treatment of all infected persons, especially the chronic cases who act as carriers. All people returning from Indo-China and the East should be examined and, where necessary, treated. S.W.

380—Bulletin de l'Académie Vétérinaire de France.

a. GUILHON, J. & OBRY, J., 1951.—" Action du gallate d'isopropyle sur les strongylidés gastro-intestinaux du mouton." 24 (6), 348–350.

(380a) Guilhon & Obry found that isopropyl gallate, claimed by Sukurai and Tanabe to possess anthelmintic properties, had practically no anthelmintic effect on the trichostrongylids of sheep. P.M.B.

381—Bulletin of Entomological Research.

a. McMAHON, J. P., 1951.—" The discovery of the early stages of *Simulium neavei* in phoretic association with crabs and a description of the pupa and the male." 42 (2), 419–426.

(381a) The discovery that the larvae and pupae of *Simulium neavei*, the vector of *Onchocerca volvulus* in East Africa, attach themselves to the crab *Potamon niloticus* may affect the methods employed heretofore for their eradication. Approximately 50% of the crabs examined were carriers. Complete disinfestation may be complicated by the mobility of *P. niloticus*. The contiguous rivers may have to be treated on the same day and it may be necessary to include the lower reaches of their tributaries. In 1946, large doses of D.D.T.,

up to 30 p.p.m., were used in rivers in the Kodera district of Kenya when *S. neavei* was prevalent. No larvae or pupae of *S. neavei* could be found on the crabs in 1950. R.T.L.

382—Bulletin of the Institute for Medical Research. University of Madrid.

a. ALÉS REINLEIN, J. M., ARJONA TRIGUEROS, E. & OBRADOR ALCALDE, S., 1951.—"The study of cerebrospinal fluid in diagnosis of cysticercosis of the central nervous system." **4** (2), 65–76.

(382a) [This is an English translation of a paper in Spanish published in *Rev. clin. espan.*, 1951, **40** (1), 12–18, for abstract see Helm. Abs., **20**, No. 275a.]

383—Bulletin Médical de l'Afrique Occidentale Française.

a. SOHIER, H., PARIS, P. & CAMAIN, R., 1951.—"Appendicite et kyste hydatique de l'épiploon." **8** (1), 49–52.
b. CAMAIN, R., NAVARRANNE, P. & AYITE, E., 1951.—"Deux cas d'annexite à *Schistosoma haematobium* observés à Dakar." **8** (1), 57–64.

(383b) [This paper has also appeared in *Bull. Soc. Path. exot.*, 1951, **44**, 202–208. For abstract see Helm. Abs., **20**, No. 12e.]

384—Bulletin et Mémoires de la Société Médicale des Hôpitaux de Paris.

a. DOUMER, E., LORRIAUX, A. & BELBENOIT, C., 1951.—"Polyarthrite aiguë fébrile grave guérie après élimination d'un ascaris." 4e Série, **67** (19/20), 801–804.

385—Bulletin de la Société de Chimie Biologique.

a. CAVIER, R. & SAVEL, J., 1951.—"Sur la composition chimique de l'ascaris du porc, *Ascaris lumbricoides* Linné 1758." **33** (5/6), 447–454.
b. CAVIER, R. & SAVEL, J., 1951.—"Sur la composition chimique du liquide coelomique de l'ascaris du porc, *Ascaris lumbricoides* Linné 1758." **33** (5/6), 455–460.

(385a) Cavier & Savel give figures for the chemical composition of *Ascaris lumbricoides* of the pig. In general, their results agree with those of previous workers. W.P.R.

(385b) Cavier & Savel have analysed the body fluid of *Ascaris lumbricoides* of the pig and extended the work of previous investigators to include, total lipid 319 mg. per cent, cholesterol 15·2 mg. per cent, urea 48 mg. per cent, and amino nitrogen 60 mg. per cent. They obtained a higher value for the potassium content, 248 mg. per cent, than previous workers. The composition of the body fluid is discussed and compared with that of blood plasma. W.P.R.

386—Bulletin de la Société Neuchâteloise des Sciences Naturelles.

a. DUBOIS, G., 1951.—"Étude des trématodes nord-américains de la collection E. L. Schiller et revision du genre *Notocotylus* Diesing, 1839." **74**, 41–76. [English & German summaries p. 71.]
b. BAER, J. G. & DUBOIS, G., 1951.—"Note sur le genre *Pharyngostomum* Ciurea, 1922 (Trematoda : Strigeida)." **74**, 77–82. [English & German summaries pp. 81–82.]

(386a) A collection of seven trematodes from the wild ducks of Wisconsin is briefly described. It contained *Echinostoma chloropodis cachinnans* n.subsp. from *Gallinula chloropus cachinnans*. The genus *Tracheophilus* which Joyeux & Baer had suppressed is restored. A key is given for the three genera of Typhlocoeliinae. The genus *Notocotylus* is revised and subdivided into two subgenera, *Notocotylus* and *Hindia* (syn. *Kossackia*). The measurements of 18 species and 2 subspecies of *Notocotylus* are tabulated and a key provides for their specific determination. Those species which parasitize anserines constitute two distinct biological groups: one develops in pulmonate, the other in prosobranch molluscs. R.T.L.

(386b) *Pharyngostomum cordatum*, which is now reported in *Actionyx guttatus* from Tanganyika, is redescribed and the systematic position of the genus is discussed. As *Pharyngostomum* lacks a cirrus pouch, and as the cercaria of *P. cordatum* closely resembles those of *Alaria mustelae* and *Fibricola cratera*, it is returned to the Alariinae in which it was originally placed by La Rue. *P. fausti* and *P. congolense* are considered to be synonyms of *P. cordatum*. R.T.L.

387—Bulletin de la Société de Pathologie Exotique.

a. DESCHIENS, R., 1951.—"Le problème sanitaire des bilharzioses dans les territoires de l'Union Française. (Fréquence, mollusques vecteurs, conditions étiologiques.)" **44** (9/10), 631–667.
b. DESCHIENS, R., 1951.—"Le problème sanitaire des bilharzioses dans les territoires de l'Union Française. (Thérapeutique, prophylaxie.)" **44** (9/10), 667–688.
c. POIRIER, M. & DESCHIENS, R., 1951.—"Sur une modalité de la technique de coloration des microfilaires. Méthode panoptique." **44** (11/12), 748–749. [Discussion p. 749.]

(387a) Deschiens gives a general account of the incidence and importance of human schistosomiasis in the French Union territories, lists the species of snail intermediaries and discusses their habitats and biology. The incidence of the disease in the different territories is tabulated as is the relationship of the number of cases to the general mortality rate. When data are available, information is given concerning the species of snail vectors involved in particular territories, and the incidence of infection in them. J.J.C.B.

(387b) Deschiens sets forth the main facts concerning the treatment of schistosomiasis by means of intravenous, intramuscular and subcutaneous injection of various compounds, symptomatic treatment and surgical treatment. He discusses the use of oral administration, as a prophylactic measure, of derivatives of thioxanthone, tin compounds and antimony salts. He outlines and discusses the main principles involved in general and individual prophylaxis against the disease. J.J.C.B.

(387c) Poirier & Deschiens describe a technique for staining microfilariae in both thick and thin blood films. Thick films are treated with two solutions of Giemsa in neutral distilled water at concentrations of five drops and fifty drops in 10 c.c. of water respectively. Thin films are first fixed in May-Grunwald and then stained in Giemsa (50 drops in 10 c.c. of water). In the discussion Brumpt describes the technique which he has used successfully for a number of years. S.W.

388—Bulletin de la Société Zoologique de France.

a. THÉODORIDÈS, J., 1951.—"*Rhabditis* et *Diplogaster* (Nématodes Anguillulata) à larves commensales ou parasites de Coléoptères, nouveaux pour la France." **76** (1/2), 64–67.
b. ARVY, L., 1951.—"Sur une nouvelle espèce de *Capillaria*, parasite hépatique chez *Triturus helveticus* Razoumowsky et *Triturus vulgaris* Linné." **76** (3), 178–182.
c. EUZET, L., 1951.—"*Echinobothrium mathiasi* n.sp. (Cestode Diphyllidea) parasite d'une raie : *Leiobatis aquila* L." **76** (3), 182–188.
d. ARVY, L., 1951.—"Contribution à l'étude de *Cercaria dollfusi*, cercaire cystophore parasite de *Philine aperta* L. (Opisthobranche Cephalaspide)." **76** (5/6), 339–348.

(388a) The following six species of nematode larvae parasitic or commensal on Coleoptera are recorded from France for the first time: *Rhabditis mutatoris*, *R. voelki*, *R. stammeri*, *Diplogaster henrichae*, *D. hirschmannae* and *D. aphodii*. The identifications were made by Dr. H. Sachs. R.T.L.

(388b) *Capillaria fagei* n.sp. was found greatly enlarging the livers of 30% of 113 *Triturus helveticus* and *T. vulgaris* near Fontainebleau and Verrières. The males measure 15–20 mm. in length and the females usually 40 mm. The eggs are smooth and transparent and measure 61–65 μ by 24–28 μ. R.T.L.

(388c) *Echinobothrium mathiasi* n.sp. is reported from the ray, *Leiobatis aquila*. There is a key to the distinguishing characters of this and the six other species of *Echinobothrium*. R.T.L.

(388d) During the examination of 250 *Philine aperta* collected from the beach at Dinard, Arvy observed 23 cases of parasitic castration caused by cystophorous cercariae. Of these, 22 were due to *Cercaria dollfusi* n.sp. which Arvy describes and illustrates, and one to a cercaria probably identical with that described by François from similar hosts. He has also studied the histology of the parasitized gonads and the changes (particularly in glycogen content) taking place in the integument of the redia during the development of the cercariae. S.W.

389—Bulletin. Wyoming Agricultural Experiment Station.

a. HONESS, R. F., 1951.—" Common helminths of Wyoming sheep." No. 305, 24 pp.

390—Byulleten Moskovskogo Obshchestva Ispytatelei Prirodi. Otdel Biologicheski.

a. PLOTNIKOV, N. N., 1951.—[The leading part played by Russian scientists in the study of the helminth *Dracunculus* (parasitic worm).] **56** (2), 92–96. [In Russian.]

391—California Citrograph.

a. BAINES, R. C. & CLARKE, O. F., 1951.—" Citrus-root nematode." 37 (2), 60, 62, 86.
b. BAINES, R. C. & THORNE, G., 1951.—" Citrus-root nematode on olive." 37 (2), 74.

(391a) [Papers substantially the same as this appear in *Citrus Leaves*, 1951, **31** (12) 16–17 and *Calif. Agric.*, 1952, **6** (2), 9, 13. For abstract see Helm. Abs., **21**, No. 9a.]

(391b) [A fuller account of this article appears in *Phytopathology*, 1952, **42**, 77–78. For abstract see Helm. Abs., **21**, No. 30n.]

392—Canadian Journal of Comparative Medicine.

a. FRANK, J. F., 1951.—" A study on the incidence of trichinosis in wild rats in the Maritime Provinces." 15 (12), 279–283.

(392a) Frank reports that *Trichinella spiralis* cysts were found in 20 out of 460 rats trapped in Nova Scotia, New Brunswick and Prince Edward Island. Ten of the infected rats were collected from 6 out of 22 refuse dumps and ten from 5 out of 11 abattoirs; no infected rats were found in the 31 other premises visited (farms, houses etc.). The survey confirms the view that trichinosis infection in rats is generally incidental to that in swine, although it may indicate the prevalence in pigs in the neighbourhood where the rats were caught. S.W.

393—Canadian Journal of Zoology.

a. WOLFGANG, R. W., 1951.—" Studies on the endoparasitic fauna of Trinidad mammals. VIII. Parasites of marsupials." 29 (6), 352–373.

(393a) Two species of Trematoda and 17 of Nematoda were collected from three species of opossums in Trinidad. Eight new species are described and illustrated. (i) *Zonorchis philanderi* n.sp. from the bile ducts of *Philander trinitatis*; the folds of the uterus are under and the testes are behind or below the acetabulum. (ii) *Cruzia cameroni* n.sp. occurred in *Didelphis marsupialis insularis* and *D. m. karkinophaga*; it is closely related to *C. tentaculata* but the lips are separated from the body by the shoulders, the amphids are raised as appendages to the lips and there are 10 caudal papillae. (iii) *Subulura trinitatis* n.sp. from *P. trinitatis* and *D. m. insularis* is smaller and has smaller spicules and gubernaculum than its nearest relative *S. lanigeri*. (iv) *Camerostrongylus didelphis* n.g., n.sp. from *D. m. insularis* closely resembles *Citellinema*, but the spicules are simple and the anterolateral ray reaches the bursal margin. (v) *Philostrongylus philanderi* n.g., n.sp. from *Philander trinitatis* resembles *Longistriata* but in the female the tail is not conical; the vulva and anus are side by side terminally. (vi) *Spirocerca cylicola* n.sp. from

D. m. insularis is similar to *S. longispiculata* but is distinguished by the presence of a gubernaculum, by the longer female tail, by the absence of cervical papillae and by a different ratio of muscular and glandular parts of the oesophagus. (vii) *Trichuris urichi* n.sp. from *D. m. insularis* has "blisters" on the bacillary band. (viii) *T. reesali* n.sp. from the same host differs from *T. urichi* in several measurements which are tabulated, in having a different type of vulva, a straight tail and a different type of bacillary band. R.T.L.

394—Canadian Medical Association Journal.

a. GOLDBERG, W. M. & LYMBURNER, R., 1951.—" Strongyloidiasis with gross ascites." 65 (2), 152–153.

b. MILLER, M. J. & MUNROE, E., 1951.—" Schistosome dermatitis in Quebec." 65 (6), 571–575. [French summary p.575.]

(394b) Swimmer's itch due to schistosome cercariae is common in western Canada but has not been recorded hitherto from eastern Canada. An infested area near Montreal is now reported. Inquiry showed that a number of cases of this skin rash had been noticed especially in June during the past fifty years. Cercariae shown experimentally to belong to *Trichobilharzia* sp.inq. occurred in about 10% of *Stagnicola* collected from the area. R.T.L.

395—Chinese Medical Journal. Shanghai.

a. FU, H. H., WU, Y., WU, K. H. & CHOW, Y., 1951.—" Areca nut in the treatment of *Diphyllobothrium latum* infection. Report of a case." 69 (9/10), 407–409.

(395a) A case of infection with *Diphyllobothrium latum*, which is rare in China, was successfully treated with a concoction of areca nut, but there were colicky pains, protracted nausea and retching. Atebrin had been given about a fortnight previously with unsatisfactory results. R.T.L.

396—Circular. United States Department of Agriculture.

a. CHITWOOD, B. G., 1951.—" The golden nematode of potatoes." No. 875, 48 pp.

(396a) In this informative pamphlet Chitwood outlines the history of the discovery of *Heterodera rostochiensis* in Europe and the United States of America. Three maps show its spread around Hicksville between 1941 and 1949. Successive sections then deal with host-parasite relationships, survey methods, modes of dispersal, nature of populations, relation of disease to soils and fertilizers, control by crop rotation, soil fumigation and tuber disinfestation and disinfection. It is concluded that neither a six-year rotation nor soil fumigation is a practical method of eliminating the nematodes from the soil, but soil fumigation reduces the number of larvae in the soil and one satisfactory crop can be grown after soil fumigation with two applications of 23·5 gallons of D-D mixture or of 20% volume of ethylene dibromide mixture, the soil being turned over between these applications. When infection is located the crop should be harvested only when fully mature, the tubers thoroughly washed, and marketed in paper bags only, for consumption in metropolitan areas. The literature cited covers 61 titles. R.T.L.

397—Circular. Wyoming Agricultural Experiment Station.

a. RYFF, J. F. & HONESS, R. F., 1951.—" Internal parasites of sheep." No. 42, 16 pp.

398—Citrus Leaves. Los Angeles.

a. BAINES, R. C. & CLARKE, O. F., 1951.—" Citrus root nematode." 31 (12), 16–17.

(398a) [Papers substantially the same as this appear in *Calif. Citrogr.*, 1951, **37** (2), 60, 62, 86 and *Calif. Agric.*, 1952, **6** (2), 9, 13. For abstract see Helm. Abs., **21**, No. 9a.]

399—Clinica Nuova. Rome.

a. ROSSI ESPAGNET, A., 1951.—" Studi sulla comparsa di proteasi specifiche di difesa in soggetti portatori di cisti di echinococco." **12** (5), 175–178.

(399a) The Abderhalden reaction was positive in 6 out of 8 hydatid cases which had been treated with vitamin C, but only in 2 out of 10 untreated cases. P.M.B.

400—Clinica Pediatrica. Bologna.

a. FORTUNATO, A. & JABOLI, O., 1951.—" Contributo sull 'azione antiossiurica della fenotiazina." **33** (1), 51–61. [French summary p. 60.]

(400a) "Fenoverm" is an Italian preparation of phenothiazine for medical use, each tablet containing a minimum quantity of phenolphthalein to counteract possible intestinal atony in persons sensitive to phenothiazine. This preparation was administered three times daily for two days to 50 enterobiasis patients in the following total dosages of phenothiazine: nine infants aged 1 to 3 years, 1·0 gm.; twenty-eight children aged 3 to 8 years, 1·2 gm.; five children aged 8 to 15 years, 2·1 gm.; eight persons aged over 15 years, 4·2 gm. One course of treatment was effective in 33 (66%) of the cases, and a second course, 20 days later, in 9 (18%); 8 (16%) were still infected. The absence of any disturbance or of toxic symptoms is emphasized. E.M.S.

401—Comptes Rendus des Séances de l'Académie des Sciences. Paris.

a. ARVY, L., 1951.—" Sur la castration parasitaire chez *Philine aperta* Linné." **233** (18), 1065–1067.

(401a) [A fuller account of this paper appears in *Bull. Soc. zool. France*, 1951, **76**, 339–348. For abstract see No. 388d above.]

402—Comptes Rendus des Séances de la Société de Biologie. Paris.

a. LAGRANGE, E., 1951.—" L'action oligodynamique sur les planorbes." **145** (5/6), 458–459.
b. PAUTRIZEL, R., RIVASSEAU, J. & RIVASSEAU, D., 1951.—" Injection d'extrait de douve et éosinophilie sanguine chez le mouton douvé." **145** (9/10), 720–721.
c. SCHWETZ, J. & STIJNS, J., 1951.—" Sur la redécouverte de *Schistosoma rodhaini* Brumpt et la découverte de son hôte définitif." **145** (15/16), 1255–1257.
d. SCHWETZ, J., 1951.—" Nouvelles données sur *Schistosoma intercalatum* Fischer 1934." **145** (15/16), 1257–1259.
e. MOIGNOUX, J. B., 1951.—" Recherches expérimentales sur le cycle évolutif des microfilaires d'*Onchocerca reticulata* Dies. en Camargue." **145** (19/20), 1572–1573.
f. BACIGALUPO, J., 1951.—" Parasitose expérimentale du rat blanc par une *Hymenolepis diminuta* d'origine humaine." **145** (21/22), 1729.

(402a) Lagrange has demonstrated by laboratory experiments that the immersion of metallic copper in water has a lethal (oligodynamic) effect within 24 hours on *Planorbis glabratus*. Various compounds, but no other metal, had a similar effect. It is noted that schistosome cercariae are unaffected by copper. P.M.B.

(402b) The injection of extract of *Fasciola hepatica* into 24 sheep which were already showing clinical signs of fascioliasis, caused a marked fall in the eosinophil count due to the liberation of histamine; the lowest count was reached in 7 hours. This was followed by a rapid increase and the original count was exceeded within 24 hours. The injection of histamine into infected sheep caused a similar and more rapid initial fall in the eosinophil count. P.M.B.

(402c) Autopsies on two mice which died on the 40th day after experimental infection with cercariae thought to be those of *Schistosoma mansoni* at Elisabethville, Belgian Congo, revealed adult male and female schistosomes in the liver and mesentery and numerous eggs of *S. rodhaini* in the liver and faeces. Eggs of *S. rodhaini* were subsequently found in the faeces of 6 out of 8 mice, and those of *S. mansoni* in the remaining two, all of which were infected at the same time. This is the first record of *S. rodhaini* at Elisabethville since

its discovery there as a new species in 1931. The rodents *Lophuromys, Praomys* and *Pelomys* were found to be definitive hosts and *Planorbis pfeifferi* the intermediate host. No evidence of infection was found in man. P.M.B.

(402d) Schwetz confirms Fischer's view that the intestinal schistosomiasis prevalent at Stanleyville, Belgian Congo, and characterized by eggs with a terminal spine, is caused by *Schistosoma intercalatum*. He was able to infect three mice with cercariae from naturally infected *Physopsis*. The eggs found in the faeces 51–56 days after infection were easily distinguishable from those of *S. haematobium* (which is absent from the locality), being more elongated and with a longer terminal spine. Ten out of 60 *Physopsis* infected from the mice began to emit cercariae on the 63rd to 80th day. P.M.B.

(402e) Although the microfilariae of *Onchocerca reticulata* do not normally circulate in the blood a very few were found at 5 p.m. and 6 p.m. in the blood taken at the level of the external plantar vein. On the other hand with the biopsy technique recommended by Raynal, scraps of epidermis and dermis from this region showed many microfilariae when placed in physiological serum. [Moignoux devotes the remainder of this paper to an account of the development of *O. reticulata* in *Culicoides nubeculosus* in the Camargue district of France. The details, with verbal alterations of the text, are the same as those given in a previous paper. For abstract see Helm. Abs., **20**, No. 203a.] R.T.L.

(402f) Bacigalupo infected *Tenebrio molitor* with *Hymenolepis diminuta* obtained from man in Argentina. Twenty days later cysticercoids were found in the body-cavity; these were fed to white rats which 20 and 24 days later passed *Hymenolepis* eggs in their faeces. The percentages of wild rats found infected were 30·7% in Buenos Aires, 33·3% in Rosario, 37·5% in Bahia Blanca and 46·6% in San Nicolas. Naturally infected intermediaries found were *Dermestes peruvianus, Ulosonia parvicornis* and *Xenopsilla cheopis*; a number of other insects were infected experimentally. S.W.

403—Cornell Veterinarian.

a. DOUGLAS, J. R., 1951.—"New parasite records from California dogs." **41** (4), 342–346.
b. MAPES, C. R., 1951.—"Studies on the biology of *Dicrocoelium dendriticum* (Rudolphi, 1819) Looss, 1899 (Trematoda : Dicrocoeliidae), including its relation to the intermediate host, *Cionella lubrica* (Müller). I. A study of *Dicrocoelium dendriticum* and *Dicrocoelium* infection." **41** (4), 382–432.
c. MAPES, C. R. & KRULL, W. H., 1951.—"Studies on the biology of *Dicrocoelium dendriticum* (Rudolphi, 1819) Looss, 1899 (Trematoda : Dicrocoeliidae), including its relation to the intermediate host, *Cionella lubrica* (Müller). II. Collection of the snail, *Cionella lubrica*, and its maintenance in the laboratory." **41** (4), 433–444.

(403a) Douglas reports three new records of helminths in dogs in California. During an investigation into salmon poisoning, part of a trout containing metacercariae of *Troglotrema salmincola* was fed to a dog; at post-mortem examination nine days later, 35 *Alaria americana* and 3 *Apophallus donicus*, as well as several thousand *T. salmincola*, were recovered from the duodenum and jejunum. Proglottides of *Mesocestoides variabilis*, previously recorded from a cat at Vacaville, were obtained following anthelmintic treatment of two dogs from the same area. S.W.

(403b) Mapes summarizes the literature on the taxonomy, life-history, geographical distribution, and intermediate and definitive hosts of *Dicrocoelium dendriticum* and describes his own work on this fluke in New York State. He carried out a survey of the molluscan fauna of a farm on which a flock of sheep known to be heavily parasitized had been pastured for a number of years, and also of several restricted areas from which animals were believed to have acquired the infection; in addition *Dicrocoelium* eggs were fed to a large number of molluscs collected from uninfected areas and a sheep was fed cercariae obtained from naturally infected snails. *Cionella lubrica* was the only snail found naturally infected or in which an experimental infection could be established although the fluke eggs hatched in

the intestines of several species. As most of the snails were dissected 35–40 days after exposure but the sporocysts were not detected until the 80th day, it is possible that this accounts for some of the negative results. Other mammals found infected were *Marmota monax rufescens*, *Dama virginianus*, domestic cattle and goat, and two horses (by faecal examination only). Mapes concludes his paper with an extensive illustrated account of the pathology of *Dicrocoelium dendriticum* infection in sheep, and a bibliography of 183 titles. S.W.

(403c) Mapes & Krull describe fully a technique for collecting small terrestrial snails from habitats with sparse vegetation. They made snail traps from damp gunny sacks and rocks and cultured the snails in the laboratory using petri dishes as terreria. The petri dishes and lids were fitted with filter paper which was kept moist and into each were put a piece of cured wood stem, some soil and pieces of both green and cured leaves. S.W.

404—Countryman. Nicosia.

a. ANON., 1951.—"Liver fluke control." 5 (11), 7–8.
b. ANON., 1951.—"Worms in pigs." 5 (11), 12.

(404a) In Cyprus, *Fasciola hepatica* occurs mainly in sheep and goats in the areas Morphou-Syrianochori, the Mamonia Valley, in Paphos district and at Ayios Andronikos in the Karpass. The heaviest infection occurs along the course of the river Dhiarrizos from Kithasi to Kouklia in the Paphos district where the number of livers condemned reaches nearly 100%. As experimental treatment of the pastures with copper sulphate at Souskiou in September 1950 greatly reduced the number of adult flukes found in sheep and goat carcasses, the water channels in the entire area from Kithasi to Kouklia were similarly treated in 1951. The results indicate that individual treatment with carbon tetrachloride is advisable. The extension of this campaign to other areas in Cyprus is under consideration. R.T.L.

(404b) As the incidence of *Ascaris lumbricoides* in pigs in Cyprus is very high, it is recommended that all pigs should be treated at least twice yearly with sodium fluoride. R.T.L.

405—Crops and Soils. Madison, Wisconsin.

a. SCHAAL, W., 1951.—"New table pea variety rates high in yield, nematode resistance." 3 (8), 28.
b. ANON., 1951.—"Corn plants stunted by nematodes." 3 (8), 29.
c. ANON., 1951.—"New lespedeza resists nematodes and mildew." 3 (9), 28.

(405a) A new southern table pea variety called Dixielee, which has been developed by the Delta Branch Experiment Station at Stoneville, Mississippi, is apparently resistant, or at least tolerant, to nematodes. R.T.L.

(405b) The damage caused to maize in eastern Texas by meadow nematodes, especially when the soil is poorly aerated, is illustrated by a photograph of a field in August in which the maize plants are only between 6 inches and 3 feet tall. To minimize the damage, early cultivation and keeping the soil in an open and porous condition with good crop rotations are recommended by the plant pathologist at the Texas Agricultural Experiment Station. R.T.L.

(405c) It is stated that a new variety of Korean lespedeza called Rowan, released by the North Carolina Agricultural Experiment Station, appears sufficiently superior to commercial Korean in resistance to root-knot nematodes to make the difference between success and failure in producing a hay crop. R.T.L.

406—Current Science. Bangalore.

a. SRIVASTAVA, H. D. & DUTT, S. C., 1951.—"Life-history of *Schistosoma indicum* Montgomery, 1906,—a common blood-fluke of Indian ungulates." [Correspondence.] 20 (10), 273–275.

(406a) Experimental infection of a rabbit with *Schistosoma indicum* was obtained by exposure to a furcocercous cercaria from *Indoplanorbis exustus* and was reported by Khaw in 1947, but the morphology of the cercaria was not then described. Srivastava & Dutt now record the successful infection of a kid, a lamb and a guinea-pig with an apharyngeal brevifurcous non-ocellate cercaria from the same molluscan species. The faeces of the kid and lamb contained eggs of *S. indicum* 52 and 62 days respectively after infection. The faeces of the guinea-pig remained negative for 8 weeks, but at autopsy 376 males, 3 females and 91 pairs in copula were recovered from the portal and mesenteric blood and two mature and 24 immature males were found in the lungs; none of the females contained eggs. The kid on autopsy 63 days after infection yielded 536 males, 10 females and 17 pairs in copula from the portal and mesenteric veins and 36 males from the lungs. When the lamb died 157 days after infection 490 males and 35 females were collected from the portal and mesenteric veins and 55 males from the lungs. The paper concludes with a detailed and illustrated account of the morphology of the cercaria. The maximum number of maturing cercariae seen in a sporocyst was three. R.T.L.

407—Cyprus Medical Journal.

a. MARANGOS, G., 1951.—"Hydatid disease in the island of Cyprus." 4 (5/6), 652–654.

(407a) During the 14 years 1936 to 1949, 513 patients with hydatid cyst underwent operation in the Government Hospitals in Cyprus, with a mortality of 4·7%; 137 other cases were operated upon in private clinics. With a frequency of 12·9 cases per 100,000 population, Cyprus has therefore the highest incidence in Europe and is second only to Uruguay in the whole world. R.T.L.

408—Dansk Landbrug.

a. CHRISTENSEN, J., 1951.—"Rugens Fortrin." 70 (33), 375–376.

(408a) Christensen points out that barley and wheat in a crop rotation give opportunity for the oat eelworm (*Heterodera major*) to propagate. Heavy attacks on oats are common when oats are grown after wheat or barley. However, this eelworm does not multiply in rye which has a great advantage in this respect. S.B.

409—Deutsche Landwirtschaft.

a. NOLTE, H. W., 1951.—"Zur chemischen Bekämpfung der Nematoden." 2 (2), 94–95.

(409a) Nolte briefly mentions recent work in America, Germany and England on the nematicidal effects of carbon disulphide, chloropicrin, "Cystogon", the newer insecticides, D-D mixture, ethylene dibromide, methyl bromide and dichloroethyl ether. B.G.P.

410—Deutsche Medizinische Wochenschrift.

a. TIMTSCHINOV, N., 1951.—"Einige Bemerkungen über die zoologische Nomenklatur in der Medizin." 76 (24), 807–808.

b. HIRTE, W., 1951.—"Bandwurmkuren mit einem Zinnpräparat." 76 (35), 1083–1085.

(410a) Timtschinov lists as nomenclaturally correct the names *Enterobius vermicularis*, *Trichocephalus trichiurus*, *Hymenolepis nana*, *Taeniarhynchus saginatus* and *Diphyllobothrium latum*. He gives some of their common synonyms used in medical literature. R.T.L.

(410b) Hirte has successfully treated cestode infections [parasites unnamed] in man with "Cestodin" tablets, containing pure, powdered tin, tin oxide and tin chloride, marketed by the "Nematodin-Gesellschaft" Hamburg. The dosage was one tablet three times a day after meals for six days (this was later reduced to three days). Magnesium sulphate was administered before and after treatment. In each of 110 cases treatment was effective and of 58 of the patients re-examined after at least three months, 56 were still worm free. Except for a transient feeling of fullness in one or two cases and vomiting in one extremely sensitive female the treatment was very well tolerated. So far there are no contra-indications. A.E.F.

411—Deutsche Zeitschrift für Nervenheilkunde.

a. BETZENDAHL, W., 1951.—"Über die Beteiligung des Nervensystems bei der Trichinose." 166 (1), 31–44.

(411a) Betzendahl presents five case histories of trichinelliasis among German soldiers serving on the eastern front during the 1939–1945 war. In each case there was heavy involvement of the brain and nervous system. A.E.F.

412—Día Médico. Buenos Aires.

a. SANT'ANGELO, E., 1951.—"Un nuevo tenífugo." 23 (22), 890–891.

(412a) Sant'Angelo treated 20 patients of varying ages and of both sexes for *Taenia saginata* with β-(4-hydroxy-3,5 diiodophenyl)-α-phenyl propionic acid. The scolex was removed in all except two who were among the first six patients. P.M.B.

413—Diseases of the Chest. Chicago.

a. CANIZARES, M. & CELIS, J., 1951.—"Observations on paragonimiasis at the Quezon Institute." 19 (6), 668–676. [French & Spanish summaries pp. 675–676.]
b. SAMI, A. A., 1951.—"Pulmonary manifestations of schistosomiasis." 19 (6), 698–705. [French & Spanish summaries p.705.]

(413a) [This is a translation of a paper published in *Rev. esp. Tuberc.*, 20 (190), 39–46. For abstract see No. 551a below.]

(413b) Pulmonary schistosomiasis, common in endemic areas, is the result of progressive obstruction of the pulmonary arterioles from embolism by eggs leading to pulmonary hypertension, dilatation of the pulmonary arteries and enlargement of the right side of the heart. Worms cause no lesions until they die, when an acute focal necrotising pneumonia occurs. This cicatrizes and the worms may become calcified. The disease may be arrested at any stage but usually the patient succumbs to associated hepatic cirrhosis, and in advanced cases to heart failure. Sudden death from pulmonary infarction is not uncommon. R.T.L.

414—Documenta Neerlandica et Indonesica de Morbis Tropicis.

a. LIE KIAN JOE, 1951.—"Some human flukes from Indonesia." 3 (2), 105–116.
b. LE POOLE, A., 1951.—"Hypersplenism in patients infected with *Schistosoma mansoni*." 3 (2), 181–185.
c. VAN DER KUYP, E., 1951.—"Notes on Planorbidae in the Netherlands Antilles." 3 (3), 283–284.

(414a) Lie Kian Joe describes and illustrates two new trematodes from man in Indonesia. The first, *Paralecithodendrium molenkampi* n.sp. is distinguished from other species of the genus by the presence of a genital sucker, the projection of the ventral and genital suckers from the body surface and the presence of small cuticular spines; the second, *Phaneropsolus bonnei* n.sp. is differentiated by its size, the position of the genital opening and the size of the testes and ovary. *Haplorchis yokogawai*, *Plagiorchis* sp. and

P. javensis are also recorded from man and *H. yokogawai* and *Plagiorchis* sp. are described and illustrated. S.W.

(414b) A hepato-splenomegalic syndrome with haematological evidence of hypersplenism was presented by three Creoles born and bred in the Soufrière District of St. Lucia. This type of cirrhosis was associated only with schistosomiasis mansoni. The enlarged spleen increased in size during an exacerbation of the intestinal symptoms. R.T.L.

(414c) Although no indigenous cases of schistosomiasis mansoni have yet been reported from the Dutch Antilles, Van der Kuyp has identified a vector *Australorbis glabratus christophorensis* from Ovetor's Well on Rockland, Cul de Sac, Dutch St. Martin. He had previously reported *Tropicorbis isthmicus* (1949) from a well on Bonaire and from Curaçao and *Australorbis glabratus lugubris* and *Helisoma duryi intercalare* in aquaria at Curaçao imported from Venezuela, and once in an aquarium on Aruba. Emanuels (1935) found *Planorbis olivaceus* (?) at Cul de Sac in the Dutch part of St. Martin and at Colombier in the French part and had reported cases of schistosomiasis mansoni from the French settlement where snails were infected with *Schistosoma mansoni.* R.T.L.

415—Dokladi Akademii Nauk SSSR.

a. SHUMKINA, O. B., 1951.—[Periods of intra-cocoon development of the medicinal leech.] **78** (6), 1259–1262. [In Russian.]
b. VINNITSKI, I. M., 1951.—[Peculiarities of the defensive reaction of the rabbit to ascarids introduced into the peritoneum.] **79** (1), 173–176. [In Russian.]
c. SPASSKI, A. A., 1951.—[Metamerism in organisms and the time factor.] **79** (3), 549–551. [In Russian.]
d. BRAUDE, G. L., 1951.—[Investigations on the development of teeth in leeches (*Hirudo medicinalis* and *Haemopis sanguisuga*).] **79** (6), 1041–1044. [In Russian.]
e. LOGACHEV, E. D., 1951.—[Investigation on the basic argyrophil substance of the Pseudophyllidea.] **80** (2), 289–292. [In Russian.]
f. SCHULZ, R. S., 1951.—[Phylogenesis of the nematode suborder Strongylata, and a new classification of the Metastrongyloidea.] **80** (2), 293–296. [In Russian.]
g. LOGACHEV, E. D., 1951.—[Formation and development of calcareous bodies in tapeworms.] **80** (4), 693–695. [In Russian.]

(415b) Vinnitski from his studies on the peculiarities of the defensive reaction of the rabbit to ascarids (*Ascaris lumbricoides* var. *suum*) introduced intraperitoneally, reports that rabbits are most susceptible to ascaris toxins. Nine ascarids from 21–34 cm. long introduced into a rabbit caused death on the following day. Lesions typical of those produced by ascarid toxins were observed at autopsy. In other cases when only two were introduced there was a rapid encapsulation of the worms and rabbits lived and, when well fed, gained weight. C.R.

(415c) Quickness of formation and speed of ripening of cestode segments determine the length of the strobila: if the formation of new segments is accomplished quickly and their maturation takes place relatively slowly the strobila may reach great length and be composed of many hundreds of proglottides. The strobila is short when the formation of proglottides is slow, but maturation is rapid. For those cestodes with alternating single sets of reproductive organs Spasski introduces the term "optical heteronomnic" and for those with unilateral or with two sets of reproductive organs he uses the term "optical homonomnic". C.R.

(415e) Logachev in his study of the argyrophil substance of the Pseudophyllidea comes to the following conclusions: (i) The basic argyrophil substance is represented by argyrophil fibres, forming an internal skeleton of each segment. Distribution of argyrophilic fibres between organs and cells is strictly defined and is in direct relationship to their function. (ii) The most strongly developed are the basic argyrophilic membrane under the cuticle and the system of argyrophilic fibres of the subcuticular cell layer. The first is of importance as a filter for the nutritive substances absorbed from the exterior, while

the second assures the movement of the subcuticular cells into the depth of the segment, after changing them into wandering elements. (iii) The net of argyrophilic fibres which covers the organs and separates cells of the segment forms the frontier membrane through which nutritive substances from the tissue fluids of the parenchyma may get into the protoplasm of cells. C.R.

(415f) Schulz in discussing the phylogenesis of the suborder Strongylata disagrees with the classification of the superfamily Metastrongyloidea as given by Skrjabin, 1941 or Dougherty, 1945. He outlines a new classification as follows: (i) Crenosomatidae n.fam. with two subfamilies Crenosomatinae and Skrjabingylinae; (ii) Protostrongylidae for the five subfamilies given by Boev & Schulz, 1950 [for abstract see Helm. Abs. **19**, No. 182d]; into the subfamily Capreocaulinae he places *Odocoileostrongylus* n.g., with *O. tenuis* as type; (iii) Pseudaliidae; (iv) Filaroididae n.fam. with two subfamilies Filaroidinae and Angiostrongylinae, the latter to include two new genera *Angiocaulus* n.g. (type *A. gubernaculatus*) and *Rattostrongylus* n.g. (type *R. cantonensis*); (v) Metastrongylidae with the subfamilies Metastrongylinae and Herostrongylinae n.subf. [No definitions accompany the new systematic names.] C.R.

(415g) According to Logachev the formation of calcareous bodies in *Thysaniezia ovilla* proceeds as follows: (i) the formation of macrophages from the cambial elements, (ii) the petrification of the macrophage nucleus, (iii) the deposition of potassium salts in the protoplasm thus creating a calcareous cell, (iv) the enlargement of the cell as a result of the gradual deposition of potassium salts in concentric layers, (v) the petrification of the protoplasm and finally the breaking up of the protoplasm and the liberation of the "naked" calcareous bodies. C.R.

416—Down to Earth. Midland, Michigan.

a. STARNES, O., REED, J. & FULMER, R. S., 1951.—" An improved soil fumigant applicator." **7** (1), 8.
b. BIRON, R. A., 1951.—" Progress report on soil fumigation." **7** (2), 6–9.

(416a) This new type of applicator for soil fumigation which is described and illustrated can be attached to almost any conventional two-furrow plough. By the addition or removal of nozzles it can be used on single or multiple ploughs. A pump is powered by a ground wheel independently of the unit which pulls the plough, and so ensures an even metering of the fumigant. A by-pass gear pump with adjustable pulleys and a graduated series of nozzles gives a wide variation in application rates and there is sufficient pressure to spray the fumigant across the surface of the plough furrow in a fan-shaped pattern. The fumigant is immediately covered with soil by the mouldboards. The plough and ground wheel lift on turning and the action of the pump is stopped. Corrosion resistant materials are used wherever they come into contact with the fumigant. R.T.L.

(416b) This report briefly summarizes a number of recent U.S. publications on the control of root-knot eelworm by soil fumigation with ethylene dibromide. It points out that the practice of soil fumigation is becoming widespread and that ethylene dibromide can be used profitably in the U.S.A. on a wide variety of crops including tobacco, carrots, celery, cotton, lima-beans, sweet potatoes, sugar-beet, peanuts and tomato. Partial failure can be reduced considerably by proper soil preparation, by fumigating when the soil moisture is high, by correct calibration of the fumigant applicator, by sealing the soil after applying the fumigant and by leaving the treated soil undisturbed for seven or eight days. R.T.L.

417—Duodecim.

a. RUIKKA, I., 1951.—" Atebriini matolääkeenä." **67** (3), 254–257.

(417a) Ruikka has tried atebrin in a series of 50 patients for the elimination of *Diphyllobothrium latum*. In most cases a single dose of 0·8 gm. was given on an empty

stomach, followed two hours later by Epsom salt and after another hour by an enema. Twenty out of thirty-two patients re-examined 5 to 20 weeks after treatment were free from tapeworm. Atebrin was well tolerated by the patients; its use instead of filicin is recommended, especially if the patient is old or has heart disease. S.W.

418—East African Medical Journal.

a. GILGES, W., 1951.—" Skin polyp—only symptom of bilharzia infection." 28 (7), 288.
b. ANON., 1951.—" Simulium control." 28 (7), 289–290. [Discussion pp. 290–291.]
c. SHIRCORE, J. O., 1951.—" A case of guinea worm." [Correspondence.] 28 (7), 292.
d. ELMES, B. G. T. & McADAM, I. W. J., 1951.—" Oesophagostome infection." 28 (8), 333–334.

(418a) A stalked polypus of skin (1 in. × ½ in.) removed from just above the clitoris of an African child contained numerous schistosome eggs. No eggs were found in the urine or faeces. R.T.L.

(418b) In this report on Simulium control from the Proceedings of a Mulago Clinical Meeting it is stated that the distribution of *Onchocerca volvulus* is wide (the Nile region, Kigezi and Toro) and that recently skin snips of the population at the Lake Albert end of the Nile had revealed a 60% rate of infection. R.T.L.

(418c) Shircore gives the travel history of a Nyasaland boy who, during a visit to Uganda, acquired a guinea-worm which took 19 months to surface in a painful swelling on the right calf. R.T.L.

(418d) Two cases of *Oesophagostomum* sp. infections of Europeans in Uganda are reported. In one case the worm was evacuated from an abscess around the caecum of a child. In the other the parasite was found in the centre of an inflammatory mass removed from the transverse colon of an adult male. In two other cases the diagnosis was not proved. [This note is illustrated by a photograph showing the anterior portion only of the worm.] R.T.L.

419—Entomologist's Monthly Magazine.

a. JACKSON, D. J., 1951.—" Nematodes infesting water beetles." 87 (1049), 265–268.

(419a) Larval nematodes have been found in the body-cavity of *Hydroporus palustris*, *H. umbrosus* and *H. gyllenhali* in Scotland and in *H. planus* in Hertfordshire. In *H. planus* an adult viviparous female was also present. All these nematodes probably belonged to the genus *Allantonema*. External nematodes which were found under the elytra of *Agabus labiatus* and *A. bipustulatus* are provisionally diagnosed as young mermithid larvae. R.T.L.

420—Farming in South Africa.

a. ALEXANDER, R. A., 1951.—" Safeguarding the Union's livestock industry." [Report of the Division of Veterinary Services for the year ended 31 August 1951.] 26 (309), 432–448.
b. NAUDE, T. J., 1951.—" Entomological research in South Africa." [Report of the Division of Entomology for the year ended 31 August 1951.] 26 (309), 503–510.

(420a) Under the subtitle Helminthology in this report, it is stated that the development of *Chabertia ovina* from egg to larva takes five days. The infective larvae show a negative geotropism and are easily killed by freezing and desiccation. Skin infection experiments were negative but after oral administration *Chabertia* eggs appeared in the faeces in six weeks. Experimental feeding of lambs with tapeworm segments from natives gave inconclusive results. Attempts to infect molluscs other than *Physopsis africana* with *Schistosoma haematobium* and *S. bovis* failed. *Bulinus tropicus* was readily infected by miracidia of *Paramphistomum cervi*. *Gaigeria* larvae failed to infect orally but infection through the skin was easily produced. Verminosis in all classes of stock was severe in certain [undefined] areas. R.T.L.

(420b) At the Kroondal Tobacco Research Station, Dowfume W40 and D-D gave encouraging results against *Heterodera marioni* in the tobacco seed-beds. The quality of the tobacco from the experiments with Dowfume was higher than from those in which D-D was used. Fumigation of 60 eelworm-infected peach trees with methyl bromide gave promising results. An experiment with compost made from heavily infested tomato plants showed that root-knot eelworm is not entirely destroyed in the decomposition process in a compost heap. An extensive survey of the plant-parasitic nematode species in South Africa is in progress. R.T.L.

421—Field.

a. CLAPHAM, P. A., 1951.—"On the track of strongylosis." **198** (5160), 942.

(421a) This account of strongylosis is intended to put clearly before the shooting public the main facts about "partridge disease". No new work is involved. The history of the disease is traced and the method of infection and the changes caused by the parasite are described. P.A.C.

422—Folha Medica. Rio de Janeiro.

*a. CARVALHO, J. D. DE & SILVA, H. DO B., 1951.—"Combate á ancilostomose no municipio de Antonina." **32** (10), 76–81.

423—Fortschritte auf dem Gebiete der Röntgenstrahlen.

a. VOGT, A., 1951.—"Zur Frage der Selbstheilung des zystischen Lungenechinococcus." **74** (5), 566–569. [English, French & Spanish summaries p. 569.]
b. VOGT, A., 1951.—"Verkalkte Echinococcus-Zysten im Bauchraum." **74** (5), 570–573. [English, French & Spanish summaries p. 573.]
c. ZUR, G., 1951.—"Zystizerkosis der Lungen und Leber." **75** (2), 186–193. [English, French & Spanish summaries p. 193.]

(423c) Cysticerciasis of the lung is not a common condition. A case from Wiesbaden in which calcified cysts were revealed by X-ray is illustrated and described. There was a concomitant invasion of the liver. In two other cases suggestive calcareous spots were seen. R.T.L.

424—Gartner-Tidende.

a. GRAM, E., 1951.—"Skaerpet kamp mod kartoffelålen." **67** (33), 359–360.

(424a) Gram gives a short review of the distribution of the potato nematode and of methods for controlling the parasite. A new edict on the control of potato nematode was promulgated in Denmark in 1951. S.B.

425—Gastroenterology. Baltimore.

a. MUSTACCHI, P. O. & EL SEBAI, I., 1951.—"Advanced schistosomal proctitis clinically resembling cancer of the rectum. Report of two cases." **19** (1), 137–141.

426—Gesunde Pflanzen. Frankfurt.

a. STELLWAAG, F., 1951.—"Nematodenbekämpfung mit Schwefelkohlenstoff im Gewächshaus." **3** (7), 151–152.

(426a) For the control of *Heterodera marioni* in tomato and cucumber green-houses, Stellwaag recommends the use of carbon disulphide emulsion. To 20 parts of carbon disulphide are added five parts of the emulsifying agent "Sapikat" and 25 to 30 parts of water; the mixture is used at 200 c.c. per square metre by watering can in shallow indentations: the soil surface should also be treated. B.G.P.

427—Gesundheits-Ingenieur.

a. MÜLLER, G., 1951.—" Zur Frage der Widerstandsfähigkeit von Askarideneiern gegen Druck." 72 (16), 281–282.

(427a) Müller has carried out experiments in order to determine whether Ascaris ova in sewage are destroyed by the pressure to which they would be submitted in the course of being pumped to fields for use as fertilizer. The results show that the pressures of up to 4·5 additional atmospheres which obtain in the sewage pumps used have no effect on the microscopic appearance of the ova or on their viability. Sewage to be used as fertilizer must therefore continue to be treated in sedimentation tanks in order to destroy helminth ova. A.E.F.

428—Harefuah.

a. WITENBERG, G., 1951.—[Some unusual observations on helminthiasis in Israel.] 41 (10), 178–180. [In Hebrew: English summary p. 180.]

(428a) At the Hebrew University, Jerusalem, Witenberg has found: (i) one specimen of *Ancylostoma caninum* among numerous specimens of *Necator americanus* expelled by an immigrant from Cuba; (ii) ova of *Physaloptera caucasica* (observed on a photomicrograph of human faeces sent by a clinical laboratory); (iii) three cases of urinary infection by *Diploscapter coronata*; (iv) a *Gnathostoma spinigerum* removed from an abscess of the arm; (v) three cases of *Moniliformis moniliformis*, two in children under two years of age, and one in an adult; (vi) *Trichostrongylus* sp. as a common parasite in immigrants from Iraq; (vii) a *Dracunculus medinensis* in a cat near Jerusalem; (viii) *Schistosoma mansoni* in over 20% of the immigrants from the Yemen; *S. haematobium* occurred rarely; (ix) that infections of the inhabitants of Israel with Ascaris and Trichuris has fallen from 30% to less than 2%, apparently due to the absence of vegetables from gardens which before the war were manured by Arabs with human excreta. R.T.L.

429—Health. Canberra.

a. WARDLE, R. N., 1951.—" Australia's interest in trichinosis." New series, 1 (2), 20–23.

(429a) The absence of trichinosis and cysticerciasis in Australia makes the export of pig meats a simple one in health certification. The many small, private packages of uncooked meat arriving at Australian ports from overseas has been greatly increased by the huge influx of immigrants bringing quantities of food from their home countries. Much of this, in the form of raw pig meat as an ingredient of sausage of favourite recipe, is seized by the Customs officers. Galley refuse from overseas ships and aeroplanes is effectively controlled by quarantine legislation, but there is always a risk that a small amount of infected pig meat may escape notice. Only stud pigs may be imported into Australia and, except for those from New Zealand, are under lifetime quarantine surveillance to prevent their slaughter for human consumption. Australian quarantine also minimizes another source of risk by effectively controlling the escape of rats from overseas vessels. R.T.L.

430—Hippokrates. Stuttgart.

*a. JAEGER, H. A., 1951.—" Oxyuriasis als neue Heilanzeige für die Anwendung von Adsormed." 22 (1), 23.

*b. WANKE, H., 1951.—" Blutegelbehandlung im Rahmen der Konstitutionstherapie." 22 (3), 70–73.

431—Idia. Buenos Aires.

a. TURICA, A., 1951.—" Comprobación de un ataque de *Heterodera marioni* Goodey a sauce-álamos del Delta." 4 (42/43), 5–6.

(431a) Poplar-willows, weeping willows and *Pinus insignis* were found infected with *Heterodera marioni* in the Parana delta region, but a species of poplar was immune. The

planting of susceptible species in soils of moderately high moisture and humus content should be avoided. R.T.L.

432—Indian Journal of Helminthology.

a. SRIVASTAVA, N. N., 1951.—"A new digenetic trematode, *Eumasenia moradabadensis* n.g., n.sp. (fam. Plagiorchiidae Luehe, 1901 : sub-family Maseniinae Chatterji, 1933) from a fresh-water fish, *Heteropneustes fossilis* ; with a note on the systematic position of the sub-family Maseniinae." 3 (1), 1–6.

b. SRIVASTAVA, N. N., 1951.—"A new trematode, *Asymphylodora kedarai* n.sp., of the family Monorchiidae Odhner, 1911." 3 (1), 7–12.

c. GUPTA, S. P., 1951.—"Studies on the trematode parasites of food fishes of U.P., a new trematode *Cephalogonimus heteropneustus* n.sp. from a fresh-water fish *Heteropneustes fossilis* (Bloch)." 3 (1), 13–20.

d. GUPTA, S. P., 1951.—"On a new trematode, *Phyllodistomum singhiai* n.sp. of the family Gorgoderidae Looss, 1899 from the intestine of a fresh-water fish, *Mastacembelus armatus* (Lacep.)." 3 (1), 21–28.

e. GUPTA, S. P., 1951.—"Trematode parasites of Indian fishes. Three new trematodes of the sub-family Leptophallinae Dayal, 1938 from fresh-water fishes of U.P." 3 (1), 29–40.

f. GUPTA, S. P., 1951.—"Three new trematodes of the family Hemiuridae Luehe, 1901 from fresh-water fishes of U.P." 3 (1), 41–54.

g. KHERA, S., 1951.—"A new nematode, *Micropleura indica* n.sp. belonging to the family Philometridae Baylis and Daubney, 1926 from the Ganges tortoise *Trionyx gangeticus* Cuvier." 3 (1), 55–58.

h. SANWAL, K. C., 1951.—"Studies on the plant-parasitic fauna of India—I. *Heterodera marioni* on brinjal (*Solanum melongena*)." 3 (1), 59–66.

i. KHERA, S., 1951.—"*Toxascaris melursus* n.sp. (sub-family Ascarinae Travassos, 1913 : family Ascaridae Cobbold, 1864 : Nematoda) from the sloth-bear, *Melursus ursinus* Shaw." 3 (1), 67–71.

(432a) *Eumasenia moradabadensis* n.g., n.sp. which is placed in the family Plagiorchiidae differs from *Masenia* in the presence of a mid-dorsal chasm in the crown of oral spines and of a distinct diverticulum from the base of the pars prostatica, and the anterior position of the genital atrium. The eggs are large and while still within the uterus contain partly developed miracidia. It occurs in *Heteropneustes fossilis* at Moradabad, U.P. R.T.L.

(432b) *Asymphylodora kedarai* n.sp. has only once been recovered from a fresh-water fish, *Puntius sophore*. It has an unarmed cirrus and metraterm, triangular testis, bipartite seminal vesicle and separate genital pores. The oesophagus is short, broad and straight; the acetabulum overlaps the intestinal bifurcation; there is no prepharynx. The eggs are non-operculate and non-filamentous. There are spines on the anterior muscular region of the body which differentiate it from *A. exspinosa*. R.T.L.

(432c) *Cephalogonimus heteropneustus* n.sp. recovered from a fresh-water fish, *Heteropneustes fossilis*, in the Lucknow district, differs from known species in the shortness of the intestinal caeca, the cylindrical and bipartite structure of the seminal vesicle, the dorsal position of the excretory pore and the absence of lateral branches in the median stem of the excretory bladder. Gupta agrees with Poche and with Sinha that *Emoleptalea* is a synonym of *Cephalogonimus*. R.T.L.

(432d) *Phyllodistomum singhiai* n.sp. from a fresh-water fish, *Mastacembelus armatus*, collected from the river Gomti, closely resembles *P. macrobranchicola* but differs in the shape and position of the genital organs and in the size of the eggs which are operculated. From all other known species it also differs in possessing three tubular branches in the middle of the excretory bladder which is tubular, zigzag in shape and ends anteriorly in a sac-like structure. R.T.L.

(432e) Three new species of *Ganadotrema* are described from *Clarias batrachus* in the United Provinces of India. In *G. phillipai* n.sp. the ventral and oral suckers are equal. In *G. mahendrai* n.sp. the anterior testis is larger than the posterior one. In *G. vermai* n.sp. the prepharynx is long, the ovary oval and the vitelline glands on the two sides are unequal. R.T.L.

(432f) Of the three new species of *Ophiocorchis* described, *O. dasus* n.sp. and *O. indicus* n.sp. were obtained from *Ophicephalus punctatus*, and *Ophiocorchis faruquis* n.sp. from *Mastacembelus armatus*. A key to the genus, which now contains five species, differentiates these new species by the position of the genital pore. In *O. indicus* it lies beside the pharynx behind the ventral sucker. In *O. faruquis* it lies on the ventral side of the left caecum, near the intestinal bifurcation, and in *O. dasus*, *O. lobatum* and *O. singularis* it lies behind the bifurcation. In *O. dasus*, however, there is no oesophageal pouch, thus distinguishing it from *O. lobatum* and *O. singularis*. R.T.L.

(432g) *Micropleura indica* n.sp. from the body-cavity of *Trionyx gangeticus* is the first species of the genus *Micropleura* to be recorded from a chelonian. It is most nearly related to *M. vazi* but differs in the number of post-anal papillae, in that the spicules are unequal and stouter and the embryos larger. The female measures 16–23 mm. and the male 5–7 mm. and the embryos are 0·72–0·87 mm. in length. R.T.L.

(432h) A heavy infection of *Solanum melongena* by *Heterodera marioni* is reported in a government vegetable garden at Lucknow. Of 2,000 plants, 35% were killed, 45% presented an unhealthy appearance and 20% showed no outward symptoms of disease. R.T.L.

(432i) *Toxascaris melursus* n.sp. from a *Melursus ursinus* which died in the Zoological Gardens at Lucknow differs from *T. leonina*, *T. transfuga* and *T. multipapillata* in having 14 pairs of pre-cloacal papillae and in the disposition of the post-cloacal papillae. R.T.L.

433—Indian Journal of Medical Sciences.

a. SHARMA & BHATIA, B. B., 1951.—" Some observations on anaemia of ancylostomiasis with special reference to iron therapy." **5** (9), 454–460.

(433a) In India hookworms are an important cause of anaemia which in 80% of 762 cases studied was due to iron deficiency. The striking response to iron therapy of a case of severe anaemia due to recurrent menorrhagia is contrasted with that of a case of hookworm anaemia. Had haemorrhage been the cause in these cases the response should have been more or less similar. The authors feel that haemorrhage is not an important cause of hookworm anaemia. If the hookworm anaemia had been due to lack of iron absorption the effect of iron therapy before and after anthelmintic treatment should have been similar, but in hookworm anaemia parenteral or oral iron therapy before anthelmintic treatment is not very effective, whereas there is a quick response if iron is administered either orally or parenterally afterwards. It is concluded that probably some substance which prevents the utilization of the iron is elaborated by the worms. R.T.L.

434—Indian Medical Gazette.

a. JIWANLATA, 1951.—" A case of hydatid cyst of rectovaginal wall causing obstruction to the delivery of foetus." **86** (10), 460.

435—Indian Medical Record.

a. GUPTA, P. N. & SAN, M. R., 1951.—" Thread worms (pinworms)." **71** (8), 235–238.

(435a) Of the 148 children under ten years old who were given one Vermexan tablet daily for three successive days, 145 were freed from *Enterobius vermicularis* and two were cured after a second course. A Vermexan tablet of 25 mg. contains 70%–80% of finely divided gammexane. R.T.L.

436—Indian Veterinary Journal.

a. McGAUGHEY, C. A., 1951.—" Preliminary note on the treatment of spirocercosis in dogs with a piperazine compound caricide (Lederle)." **27** (6), 454–457.
b. CHANDRASEKHARIAH, H. R., 1951.—" Fascioliasis in buffaloes." **27** (6), 457–458.

c. LAHIRI, B. M., 1951.—"Some observations on management and diseases of poultry in Bihar Agricultural College farm." 28 (3), 150–158.
d. GOPALAKRISHNAN, V. R., 1951.—"Stephanofilariasis among buffaloes in Assam." 28 (3), 169–176.

(436a) [This paper is reprinted from *Vet. Rec.*, 1950, 62 (51), 814–815. For Abstract see Helm. Abs., 19, No. 423b.]

(436b) Eggs identified as those of *Fasciola gigantica* were present in samples of dung from buffaloes suffering from diarrhoea and loss of flesh in the village of Todalbagi in Jamkhandi, Bijapur District. Nine out of ten buffaloes were treated successfully with hexachlorethane. The numerous molluscs, identified as "*Lenia amniata*", which were present in the local ponds were suspected of being the intermediate hosts. R.T.L.

(436c) On the Bihar Agricultural College farm the poultry are very frequently infected with roundworms and suffer from unthriftiness, diarrhoea and leg weakness; egg production is reduced. For treatment the birds are fed with mashed grain soaked with tobacco infusion in the early morning and the next feed is a mash soaked in magnesium sulphate at the rate of 1 lb. per 100 birds. The treatment was repeated a fortnight later followed by monthly doses of phenothiazine mixed in the proportion of 1% in the mash. For tapeworms, 1 c.c. turpentine in olive oil was administered individually to each bird, but areca nut powder in pill form mixed with the wheat atta proved more effective than turpentine in oil. The poultry yard was thoroughly ploughed up and treated with a weak solution of copper sulphate. R.T.L.

(436d) [This paper is reprinted from *Indian J. vet. Sci.*, 18, 227–231. For abstract see Helm. Abs., 18, No. 207a.]

437—Irish Naturalists' Journal.

a. VICKERS, K. U., 1951.—"Some trematodes from fresh-water fish in north-east Ireland." 10 (7), 189–190.

(437a) Vickers has examined a number of fresh-water fish collected within a 40-mile radius of Belfast. He found metacercariae of *Tetracotyle phoxini* in 95% of the *Phoxinus phoxinus* examined and those of *T. variegatus* (?) in all the *Coregonus pollan* and some *Perca fluviatilis*. *Gyrodactylus* sp. was present on *Pygosteus pungitius*, *Gasterosteus aculeatus* and *Phoxinus phoxinus*; *Discotyle sagitta* was collected from the gills of *Salmo trutta* and *Dactylogyrus* sp. from *Scardinius erythropthalmus*, although this last may not have been a natural infection. Of intestinal flukes, *Bunodera lucioperca* was collected from trout, one specimen of *Sphaerostoma bramae* from *Esox lucius*, *Derogenes varicus* from *Salmo salar* and *Crepidostomum farionis* from *S. trutta*. S.W.

438—Journal of Agriculture of Western Australia.

a. TOOP, C. R., 1951.—"Worms in pigs." 28 (2), 149–154.
b. SHILKIN, J., 1951.—"Internal parasites of the horse." 28 (4), 430–440.

439—Journal of the American Medical Association.

a. SYMMERS, D., 1951.—"Pathogenesis of liver cirrhosis in schistosomiasis." 147 (4), 304–305.
b. TAYLOR, D. R., MOORE, A. M. & SCHWARZ, II, H., 1951.—"Scalenus anticus syndrome caused by trichinosis." 147 (11), 1044–1046.

(439a) Five cases of schistosomiasis japonica with cirrhosis and focal schistosome granulomas in the liver are reported. Four of these were Puerto Ricans while the fifth was a native of the French West Indies. R.T.L.

(439b) A case of trichinosis is reported in which the symptom complex arose indirectly from pressure on peripheral nerves by parasitic myositis due to involvement of the left scalenus anticus muscle. Complete relief of signs and symptoms followed surgical excision of the distal involved portion of the muscle. The protean nature of trichinosis should be remembered in the differential diagnosis of neuromuscular disturbances. R.T.L.

440—Journal of Biological Chemistry.

a. BERL, S. & BUEDING, E., 1951.—" Metabolism of acetylmethylcarbinol in filariae." **191** (1), 401–418.

(440a) Berl & Bueding report experiments from which they conclude that in the presence of glucose, pyruvate or acetaldehyde, *Litomosoides carinii* produces acetylmethylcarbinol (AMC). The amount is five to ten times greater in the presence of acetaldehyde and pyruvate than with either of these substrates alone. The nematodes produce optically active (–)-AMC of which the optical rotation is $-84° (\pm 2°)$. (–)-AMC is utilized at a much faster rate than the dextrorotary isomer. The metabolic utilization of the levorotary isomer is about three times faster aerobically than anaerobically, depending greatly on its concentration. It is strongly inhibited by low concentrations of hexachlorophene. The production of AMC by filarial homogenates is markedly stimulated by cocarboxylase and manganese. Their observations indicate that in these worms, two different mechanisms are involved in the enzymatic synthesis of acetoin from acetaldehyde on the one hand and from acetaldehyde and pyruvate on the other hand. R.T.L.

441—Journal of the Bombay Natural History Society.

a. LESLIE, C. J., 1951.—" Mating behaviour of leeches." **50** (2), 422–423.
b. WORTH, C. B., 1951.—" Description and discussion of the biting of an Indian land leech (Annelida : Hirudinea)." **50** (2), 423–426.

(441a) Leslie has had the, probably unique, experience of observing the antics which precede the mating of land leeches. R.T.L.

(441b) The statement in well-known textbooks that terrestrial leeches actively spring upon their victims is described as fantastic, for they have only light receptors, not visual organs. Locomotion is by a succession of looping motions. R.T.L.

442—Journal of the Department of Agriculture. South Australia.

a. EDWARDS, G. R., 1951.—" Insect pests of vegetable crops. VII. Insect pests of onions." **54** (11), 558–561.

(442a) Under "Insect Pests of Onions" a description is given of the onion eelworm, *Anguillulina dipsaci*, which can be satisfactorily controlled by injecting the infected soil with 6 c.c. chloropicrin at 7–9 inch centres to a depth of six inches in the summer as soon after the preceding crop as possible. R.T.L.

443—Journal of the Department of Agriculture. Victoria.

a. TAYLOR, R. H., 1951.—" Soil sterilization. Various methods described." **49** (5), 223–228, 231.
b. ENGEL, A., 1951.—" Hair worm in sheep. Control measures." **49** (10), 507–508.

(443b) Under field conditions in Victoria, where there is a high rainfall in winter, it is probable that every sheep is infected with *Trichostrongylus* spp. to some extent. Although under existing systems of management it is impossible to eradicate these helminths completely, phenothiazine has proved the most effective drench. After treatment, the sheep, especially in-lamb ewes, should be placed in paddocks which have been spelled for four to six weeks. R.T.L.

444—Journal of the Faculty of Medicine of Baghdad, Iraq.

a. WATSON, J. M., 1951.—"Studies on bilharziasis in Iraq. Part VI. Seasonal variation of the vector snail, *Bulinus truncatus*." 15 (3/4), 33–68.

(444a) Watson, from studies on the seasonal variation of the *Bulinus truncatus* populations in Iraq, concludes that the temperature of the water is the principal governing factor both in changes in reproductive activity and in numbers. The early increase in May and June is due to the emergence of hibernating individuals which have been buried in the mud during the cold weather. There is considerable variation in the response of individual snails to changes in temperature. The later increases in snail population in July and October are due to the hatching of eggs during the reproduction peak in June and September. The considerable mortality in young snails which occurs after July may be due to predators or disease. In Iraq *B. truncatus* produces two generations during the summer and autumn. The most significant deduction to be drawn from these observations is that in Iraq the year is divisible into a danger season and a safe season. In central Iraq the former extends from early June until late October. During the safe season the snails are absent or buried in mud. There is little or no discharge of cercariae below 18°C. by active snails. Schistosome eggs do not hatch in cold weather. It is pointed out that a knowledge of the regular fluctuation in snail population is essential, for a normal seasonal decrease in numbers might be mistaken for the effect of control measures. R.T.L.

445—Journal Français de Médecine et Chirurgie Thoraciques.

a. DUROUX, A., TABUSSE, P. & MARTY, J., 1951.—"Une observation anatomo-clinique d'échinococcose pulmonaire métastasique d'origine cardiaque." 5 (3), 259–264. [Discussion p. 264.]

446—Journal of Helminthology.

a. HSÜ, K. C., 1951.—"Experimental studies on egg development, hatching and retrofection in *Aspiculuris tetraptera*." 25 (3/4), 131–160.
b. FENWICK, D. W. & REID, E., 1951.—"The use of a microbalance in putting up uniformly sized batches of *Heterodera* cysts for experiment." 25 (3/4), 161–165.
c. FENWICK, D. W., 1951.—"On the varying nematicidal effects of different samples of D-D against the potato-root eelworm *Heterodera rostochiensis*." 25 (3/4), 166–172.
d. FENWICK, D. W., 1951.—"A new modification of the McMaster slide for use in potato-root eelworm investigations." 25 (3/4), 173–176.
e. MORGAN, D. O., PARNELL, I. W. & RAYSKI, C., 1951.—"The seasonal variations in the worm burden of Scottish hill sheep." 25 (3/4), 177–212.
f. BUCKLEY, J. J. C., 1951.—"Studies on human onchocerciasis and *Simulium* in Nyanza Province, Kenya. II. The disappearance of *S. neavei* from a bush-cleared focus." 25 (3/4), 213–222.
g. JONES, F. G. W., 1951.—"Further observations on the distribution of the beet eelworm." 25 (3/4), 223–230.

(446a) Hsü investigated the possible occurrence of retrofection in *Aspiculuris tetraptera* by applying infective eggs to the anal region of mice which had been immobilized so as to exclude all possibility of oral infection. Immature or adult worms were subsequently found in the intestine of six out of twelve mice treated thus. This is claimed to be the first time that retrofection has been demonstrated with a non-human oxyurid worm. Experiments were also carried out to observe the development and hatching of the eggs in various media at different temperatures. The behaviour of eggs of *Enterobius vermicularis* was also studied. J.J.C.B.

(446b) Fenwick & Reid describe a series of tests carried out using a capillary microbalance to estimate the magnitude of errors consequent on the weighing out of replicate cyst batches. They find that with samples of 100 cysts the error is in the neighbourhood of 10% in cyst number, but the increased error in the larval count is barely detectable. D.W.F.

(446c) Fenwick records as a result of testing out four different samples of D-D at six dosages on naturally infested soil that although all samples were of approximately equal

potency at 50%–60% kills very large differences in dosage of each were necessary to secure kills of 90% or over. He suggests that this may be due to the differences in chemical constitution of the four samples. D.W.F.

(446d) In Fenwick's original modification of the McMaster slide, the counting area was marked on the floor of the counting chamber instead of on the roof. In the new design the distance pieces which determine the depth of the counting chamber completely surround it. There are two types of roof. In one type three vents of $\frac{1}{8}$ inch in diameter are bored at one end and a single charging hole $\frac{3}{16}$ inch in diameter at the other end. The chamber is completely closed. In the second type the roof extends from one edge of the chamber to within $\frac{1}{4}$ inch of the other end and three vents $\frac{1}{8}$ inch in diameter are bored at the closed end. This new modification can be made very easily from sheet perspex. The modified slide accommodates 1 c.c. of fluid and increased stability is claimed for it. R.T.L.

(446e) The seasonal variation in the worm burden of hill sheep with its marked rise in the spring months is confirmed. In Scotland, *Ostertagia* and *Trichostrongylus* contribute most of this increase. These genera are most commonly associated with outbreaks of helminthiasis in young sheep in the early months of the year. The spring rise is attributed to larvae picked up at that time of the year. Appreciable infections are common in hoggs about January when infections are very low in gimmers and ewes. R.T.L.

(446f) Buckley applied discriminative bush-clearing to an endemic focus of onchocerciasis to observe its effect on the adult population of *Simulium neavei*. About one year after the area had been cleared flies in routine catches on human bait fell to insignificant numbers and remained thus for two years. Check catches in subsequent years failed to reveal any *S. neavei* in the area. J.J.C.B.

(446g) Jones gives the present picture of the distribution of the sugar-beet eelworm (*Heterodera schachtii* Schmidt) in England and Wales as shown by surveys made from 1944 to 1950. Infestations are scattered throughout eastern England from south Yorkshire to the Thames but have not been observed in Scotland. Observations suggest that infestations may be even more widespread. Field surveys are compared briefly with soil surveys and their limitations discussed. M.T.F.

447—Journal of the Indian Medical Association.

a. GHOSH, S. M., 1951.—"*Ascaris lumbricoides* in the common bile duct." **20** (9), 333–334.

448—Journal of Infectious Diseases.

a. WELLS, H. S., 1951.—"Studies of the effect of antibiotics on infections with the mouse pinworm, *Aspiculuris tetraptera*. I. The action of terramycin hydrochloride." **89** (2), 190–192.

(448a) In tests on mice experimentally infected with *Aspiculuris tetraptera*, terramycin hydrochloride was found to be effective in reducing the worm burden, the size of retained worms and their egg production, if 500 mg. per kg. body-weight was administered daily for 14 days. The antibiotic effect was especially effective against immature forms. R.T.L.

449—Journal of Laryngology and Otology.

a. MITCHELL, J. F. O., 1951.—"The leech as an endo-parasite." **65** (5), 370–372.

(449a) Mitchell describes three cases of infestation with the leech *Limnatis nilotica* in Arab soldiers in Palestine; in one a leech was attached to the left vocal cord, in another to the posterior pharyngeal wall and in the third to the epiglottis. In the first case application of cocaine was necessary to make the leech release its hold; light chloroform anaesthesia was also given. P.M.B.

450—Journal of Morphology.

a. SPAETH, F. W., 1951.—" The influence of acanthocephalan parasites and radium emanations on the sexual characters of *Hyalella* (Crustacea: Amphipoda)." 88 (2), 361–383.

(450a) Spaeth finds no evidence that *Leptorhynchoides thecatus* causes parasitic castration or alteration in the secondary sexual characters of its intermediary, *Hyalella azteca*. When large numbers of parasites are present in the haemocoele they frequently cause death of the amphipods. S.W.

451—Journal of Parasitology.

†a. HOPKINS, S. H., 1951.—" Studies on larval marine bucephalids." 37 (5, Sect. 2), Suppl. pp. 13–14.

†b. WELLS, H. S., 1951.—" The action of antibiotics on *Aspiculuris tetraptera* in mice." 37 (5, Sect. 2), Suppl. p. 14.

†c. CHAN, K-F., 1951.—" Life cycle studies of *Syphacia obvelata* and their relationship to chemotherapy." 37 (5, Sect. 2), Suppl. p. 14.

†d. CAUTHEN, G. E., 1951.—" The effect of small amounts of phenothiazine on the development of the ova of the gastrointestinal nematode parasites of cattle." 37 (5, Sect. 2), Suppl. p. 14.

†e. LUCKER, J. T., 1951.—" Some new *Thelandros* (Nematoda; Oxyuridae) from the island night lizard, *Xantusia riversiana reticulata* Smith, from San Clemente Island, California." 37 (5, Sect. 2), Suppl. pp. 14–15.

(451a) Hopkins has found new bucephalid cercariae in *Ostrea equestris* and *Donax* sp. at Port Aransas, Texas. *Bucephalus cuculus* is the bucephalid cercaria of *Crassostrea virginica*. In his opinion the use of the name *Bucephalopsis* for adult bucephalids is unjustified. R.T.L.

(451b) Oral administration of terramycin and aureomycin markedly reduced the worm burden of mice experimentally infected with eggs of *Aspiculuris tetraptera*. Immature worms were more susceptible than adults. Surviving worms were much smaller and contained fewer eggs than those in control mice. Bacitracin was effective against larvae but not adults. Mice treated with neomycin, dihydrostreptomycin and chloroamphenicol retained larger numbers of worms than the controls. Polymyxin B reduced the size of the worms but did not diminish the worm burden. R.T.L.

(451c) When *Syphacia obvelata* eggs were removed on Scotch tape from the perianal region of mice they become infective after incubation for a few hours. If then introduced into mice they hatched in the small intestine in an hour and appeared in the caecum in two hours. The larvae became sexually differentiated 48 hours after infection. The males became mature at about 96 hours, reached adult size at about 120 hours and disappeared or died after copulation. The females which were fertilized on or after the 5th day became gravid by the 9th day and migrated out of the host on the 12th to 15th day but could remain in the rectum while repeatedly discharging eggs on to the perianal region. Experiments failed to demonstrate retrofection. Large doses of Bacitracin on two successive days removed all larvae and young adults and caused premature migration of females. Gentian violet for three days reduced the worm count by 40% but a single dose of tetrachlorethylene had little effect. R.T.L.

(451d) Ninety per cent of the ova of gastro-intestinal nematodes of cattle failed to develop in the faeces of calves and yearlings fed daily with 1 gm. of phenothiazine. When phenothiazine was mixed with cattle faeces at the rate of 1 part in 40,000 over 90% of the ova failed to develop. R.T.L.

(451e) *Thelandros pseudoechinatus* n.sp., *T. pseudothaparius* n.sp. and *T. xantusi* n.sp. from the gut of *Xantusia riversiana reticulata* are briefly differentiated. This is the first occasion on which species of this genus have been recorded from North America. R.T.L.

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

†f. ROSEN, A. L., DOUGHERTY, E. C. & BERN, H. A., 1951.—" The reproduction of *Rhabditis briggsae* (Nematoda) as influenced by steroid hormones and thyroxine." 37 (5, Sect. 2), Suppl. p. 15.

†g. HANSEN, M. F., OONYAWONGSE, R. & ACKERT, J. E., 1951.—" Rate of development and viability of *Ascaridia galli* eggs cultured respectively in air and in water." 37 (5, Sect. 2), Suppl. p. 15.

†h. BASIR, M. A., 1951.—" The modes of egg-laying in the nematode family Thelastomatidae." 37 (5, Sect. 2), Suppl. pp. 15–16.

†i. FREYTAG, R. E., HUNTER, III, G. W. & RITCHIE, L. S., 1951.—" Dispersing agents suitable for dispersing several insoluble molluscacides." 37 (5, Sect. 2), Suppl. p. 16.

†j. HUNTER, III, G. W., RITCHIE, L. S. & FREYTAG, R. E., 1951.—" Potential molluscacides screened in the laboratory and their results in preliminary field plot tests." 37 (5, Sect. 2), Suppl. p. 16.

†k. RITCHIE, L. S., HUNTER, III, G. W. & OTORI, Y., 1951.—" Observations on the laying and incubation of eggs of *Oncomelania nosophora*." 37 (5, Sect. 2), Suppl. pp. 16–17.

†l. RITCHIE, L. S., HUNTER, III, G. W., PAN, C., YOKOGAWA, M. & NAGANO, K., 1951.—" An epidemiologic survey of the Tone River area, Japan." 37 (5, Sect. 2), Suppl. p. 17.

(451f) When added to the basic agar medium, α-estradiol strikingly decreased reproduction of *Rhabditis briggsae* but did not influence the sex-ratios for the first and second days of maturity. By the third day the worms had adapted themselves to its presence and reproduced as did the cholesterol-treated controls. Progeny reverted to normal when transferred to cholesterol agar. Methyl testosterone, testosterone and crystalline thyroxine had no effect on the reproductive pattern. R.T.L.

(451g) Ova of *Ascaridia galli* developed more slowly in air cultures with a 90% relative humidity than in water cultures; in the air culture there was a 5% mortality in the later stages of embryogeny but there was none in the water culture. Experimental infection of fowls showed that the worms from air cultures were more vigorous, for their average length was 18·16 mm. as compared with 9·13 mm. in those which developed from water cultures. R.T.L.

(451h) Basir describes for various genera of Thelastomatidae the form and structure of the eggs, the method by which they are laid and the nature and origin of their filaments, as seen when fresh. R.T.L.

(451i) Tests with 23 non-ionic dispersing agents on eight insoluble potential molluscicides showed that all were dispersed in water by one or more dispersants except Dowcide 31 for which only an oil solvent was effective. Tergitol was the most efficient. R.T.L.

(451j) Laboratory tests on *Oncomelania nosophora* with 137 compounds showed that ten were promising molluscicides but in small field plots 6 of them were unsatisfactory 14 days after application. Dowcide 2-S and Dowcide G were 100% lethal when applied in 1 : 200 dilution at 0·5 gm. per sq. ft. Copper pentachlorophenate was 95% effective at 1 : 250 at 0·4 gm. per sq. ft. and at 1 : 500 dilution at 0·2 gm. per sq. ft. More extensive field plots are now being tested. R.T.L.

(451k) In petri dishes with filter paper to which highly decomposed leaves and straw had been added *Oncomelania nosophora* laid a maximum of 30 eggs. Hatching began in about two weeks and was prolonged to 32 days. R.T.L.

(451l) In the Tone Valley north of Tokyo the helminth incidence in 2,525 individuals was: *Ascaris* 64·9%, whipworm 27·3%, hookworm 48·4%, *Trichostrongylus* sp. 20·3%, *Enterobius* (by Scotch tape technique) 54·5%, *Schistosoma japonicum* 4·1%, *Clonorchis sinensis* 6·7% and *Metagonimus yokogawai* 0·5%. The highest incidence shown by hookworm infection in the nineteen communities in this area was 84·4%, but hookworm disease

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

†m. HUNTER, III, G. W., RITCHIE, L. S., PAN, C. & YOKOGAWA, M., 1951.—" An epidemiologic survey on Shikoku Island, Japan." 37 (5, Sect. 2), Suppl. p. 17.

†n. RITCHIE, L. S., HUNTER, III, G. W., FREYTAG, R. E., PAN, C. & YOKOGAWA, M., 1951.—" An epidemiologic survey of Shizuoka Prefecture, Japan." 37 (5, Sect. 2), Suppl. pp. 17–18.

†o. STOLL, N. R., 1951.—" Axenic *Neoaplectana glaseri* in fluid cultures." 37 (5, Sect. 2), Suppl. p. 18.

†p. SCOTT, J. A. & MACDONALD, E. M., 1951.—" Retarded growth of *Litomosoides carinii* after the introduction of non-living antigenic material into the host." 37 (5, Sect. 2), Suppl. p. 18.

†q. THORSON, R. E., 1951.—" The relation of the secretions and excretions of the larvae of *Nippostrongylus muris* to the production of protective antibodies." 37 (5, Sect. 2), Suppl. pp. 18–19.

†r. WEINSTEIN, P. P., 1951.—" Regulation of water balance as a function of the excretory system of the filariform larvae of *Nippostrongylus muris* and *Ancylostoma caninum*." 37 (5, Sect. 2), Suppl. p. 19.

was rarely seen. In five villages the incidence of *S. japonicum* was 10% or higher. In one village *Trichostrongylus* sp. occurred in 77·7% of the inhabitants. R.T.L.

(451m) In the Japanese island of Shikoku 93·3% of 1,729 persons had helminths, viz., *Ascaris* 79·5%, whipworm 65·9%, hookworm 36·6%, *Trichostrongylus* sp. 3·8%, *Enterobius* (by Scotch tape technique) 68·5%, *Clonorchis sinensis* 1·9%, *Metagonimus yokogawai* 7·2% and *Paragonimus westermanii* 0·9%. In two communities the incidence of *M. yokogawai* approximated to 20%. *Schistosoma japonicum* was not found. The hookworm infections were moderate or light. R.T.L.

(451n) Of 2,278 individuals examined in the Shizuoka prefecture, Japan, 91·8% had helminths, viz., *Ascaris* 79·9%, *Trichuris* 58·3%, hookworm 27·4%, *Trichostrongylus* sp. 8·7%, *Clonorchis sinensis* 1%, *Metagonimus yokogawai* 1% (7·7% in one village), *Paragonimus* 1·9% (12·5% and 16·3% in two villages) and *Schistosoma japonicum* 1·8% (26% in one village). The two endemic foci of schistosomiasis in the prefecture were immediately north of Numazu City and at Sudo-Mura. Of the children examined by the Scotch tape technique 56·4% had *Enterobius*. In six villages in the Yoshiwara area 350 blood films were examined by the Knott technique but no microfilariae were found. R.T.L.

(451o) It is necessary to use infusion broth supplemented with extract of liver tissue as a culture medium to obtain full cycle development through more than one generation of *Neoaplectana glaseri* in test tubes. In three weeks 100 to 300-fold increases can be obtained from inocula, in tubes in the shaking machine in the dark, of 25 larvae in 10 ml. media containing 10% extract if attention is paid to *p*H and temperature. R.T.L.

(451p) The introduction of fresh or dried adult *Litomosoides carinii* into the peritoneum of cotton-rats produced a slight but significantly measurable immunity against subsequent infections. R.T.L.

(451q) Although protective antibodies have been demonstrated in immune sera their relation to the precipitates, formed *in vitro* at the body openings of nematodes when placed in immune serum from their definitive hosts, is obscure. Experiments with *Nippostrongylus muris* are briefly described which indicate that protective antibodies are formed against its secretions and excretions. R.T.L.

(451r) From observations on the filariform larvae of *Nippostrongylus muris* and *Ancylostoma caninum* in various concentrations of sodium chloride solutions and on those of *N. muris* in sucrose solutions, it would appear that the excretory system in these larvae is concerned with the regulation of water balance. It is calculated that in distilled water an amount of fluid equivalent to its body volume is expelled by a *Nippostrongylus* larva in 10·8 hours, and by an *A. caninum* larva in 74·9 hours. R.T.L.

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

†s. VON BRAND, T., WEINSTEIN, P. P. & MEHLMAN, B., 1951.—" Chemical observations on the metabolism of the larvae of *Trichinella spiralis*." **37** (5, Sect. 2), Suppl. p. 19.

†t. SPINDLER, L. A. & PERMENTER, D. O., 1951.—" Natural infections of *Trichinella spiralis* in skunks." **37** (5, Sect. 2), Suppl. pp. 19–20.

†u. LEWERT, R. M. & LEE, C. L., 1951.—" The effect of helminths on the basement membrane and ground substance of the host: a study of the mechanism of penetration." **37** (5, Sect. 2), Suppl. p. 20.

†v. KATES, K. C. & TURNER, J. H., 1951.—" Further studies on the pathogenicity of *Nematodirus spathiger* and development of resistance to reinfection." **37** (5, Sect. 2), Suppl. p. 20.

†w. BULLOCK, W. L., 1951.—" Preliminary cytochemical studies on vitamin C in the larvae of *Trichinella spiralis*." **37** (5, Sect. 2), Suppl. p. 20.

†x. ACKERT, J. E., EGERTON, J. R. & HANSEN, M. F., 1951.—" Effects of fowl ascarid parasitism upon host resistance to a bacterial toxin." **37** (5, Sect. 2), Suppl. p. 21.

†y. SPRENT, J. F. A., 1951.—" On the migratory behavior of the larvae of various *Ascaris* species in mice." **37** (5, Sect. 2), Suppl. p. 21.

(451s) During starvation in a bacteria-free inorganic solution, sterile *Trichinella spiralis* larvae consume approximately the same amount of glycogen aerobically and anaerobically. The glycogen was used fermentatively and volatile fatty acids which appeared in the medium were largely valeric acid. Anaerobically no lipids disappeared but under aerobic conditions starving larvae lost about 21% of the lipids initially present. Probably these lipids were oxidized by a relatively large fraction of the consumed oxygen. R.T.L.

(451t) The carcasses of *Mephitis mephitis* caught at Beltsville, Maryland, U.S.A were found to be naturally infected with *Trichinella spiralis*. It is suggested that these infections were acquired by eating naturally infected wild rats. R.T.L.

(451u) The mechanism of penetration has been studied in *Trichinella spiralis*, *Nippostrongylus muris*, *Schistosomatium douthitti* and *Schistosoma mansoni*; in the last named it is effected by enzymatic action which causes the disappearance of the basement membrane of the epidermis and the formation of relatively large amounts of water and alcohol-soluble polysaccharides; these are so rapidly removed from the skin that they cannot be demonstrated an hour after penetration. R.T.L.

(451v) From observations and faecal counts on lambs experimentally infected with 500,000 larvae of *Nematodirus spathiger*, it is concluded that resistance to reinfection develops rapidly and that the most severe effects result from heavy infections acquired over a short period. R.T.L.

(451w) In *Trichinella spiralis* larvae vitamin C is present in conspicuous amounts in the intestine but is apparently absent from other parts of the gut and from the reproductive system. The maximum concentration was reached between 14 and 30 days after infection and declined until only small amounts could be detected by the 190th day. R.T.L.

(451x) Growing chickens experimentally infected with *Ascaridia galli* and injected with botulinus toxin (type A) at the rate of 0·015 mg. per kg. body-weight had more worms, but showed less morbidity and mortality than the unparasitized birds. As the infected and injected birds had more worms than those with *A. galli* but without toxin, the toxin apparently lowered their resistance to the nematodes. In the injected birds, the growth in length of the female *A. galli* was more retarded than that of the males. R.T.L.

(451y) In mice experimentally fed with embryonated eggs, the larvae of *Ascaris lumbricoides* and *Parascaris equorum* migrated through the liver, lungs and intestine and eventually disappeared; the larvae of *A. columnaris*, *A. mustelarum* and *Toxocara canis*

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

†z. TINER, J. D., 1951.—" Observations on larval carnivore ascarids in rodents." **37** (5, Sect. 2), Suppl. pp. 21–22.

†ba. JASKOSKI, B. J., 1951.—" Effects of detergents on embryogeny of *Ascaris lumbricoides* var. *suum*." **37** (5, Sect. 2), Suppl. p. 22.

†bb. THOMAS, L. J., 1951.—" A survey of the internal parasites of the school children of Bimini, the Bahamas, B.W.I." **37** (5, Sect. 2), Suppl. p. 22.

†bc. CABLE, R. M. & KUNS, M. L., 1951.—" The trematode family Microphallidae with the report of a new genus." **37** (5, Sect. 2), Suppl. p. 22.

†bd. WALTON, A. C., 1951.—" Parasites of the Amphibia. Trematoda. I, II & III." **37** (5, Sect. 2), Suppl. pp. 23–24.

†be. ODLAUG, T. O., 1951.—" *Brachylaima condylura*, n.sp., from the star-nosed mole, *Condylura cristata*." **37** (5, Sect. 2), Suppl. p. 24.

became more or less permanently encysted in the subcutaneous and other tissues, except those of the intestines; and those of *Toxascaris leonina* and *T. transfuga* encysted in the caecal and rectal walls. Whether the tracheal or somatic type of migration predominated was apparently largely determined by the rate of migration and growth. R.T.L.

(451z) Larvae of *Ascaris columnaris* of the skunk produce incoordination and paralysis in laboratory rodents 30 days or more after infection. *Toxocara canis* larvae reach the brain in abundance but cause no damage. One raccoon Ascaris larva in the medulla or spinal cord of mice is fatal. Several skunk Ascaris larvae in the central nervous system of a mouse may cause damage but survival is frequent and the larvae in the brain are destroyed. As many as 100 *T. canis* larvae may remain alive in the brain of a mouse for 90 days without causing noticeable symptoms. Encapsulated ascarid larvae were found in wild fox squirrels and wild *Peromyscus leucopus*. *Toxascaris leonina* larvae became encapsulated in the skeletal muscles of *Citellus richardsoni*, hamsters and white mice but not in the brain. Under field conditions *A. columnaris* is probably responsible for some mortality in rodents. *T. transfuga* of bears probably belongs to a new genus as, unlike *T. leonina*, the larvae migrate through the lungs and become encapsulated in the large intestine and on the muscles of the neck and thorax of white mice. R.T.L.

(451ba) The length of the alkyl chain and the complexity of a detergent mixture are apparently important factors in the inhibitory action of certain synthetic an-ionic wetting agents on the cleavage of ova of *Ascaris lumbricoides* var. *suum*. The most effective appeared to be those which in some way increased the permeability of the egg shell. Duponol 80, Aresklene 400, Areskap 100 and Aresket 375 completely inhibited cleavage. The efficiency of those which normally contained no phenol was increased by the addition of 1% phenol, but there appeared to be no correlation between the reduction in surface tension and the inhibition of cleavage. R.T.L.

(451bb) In 100 schoolchildren at Bimini in the Bahamas the helminth incidence was Ascaris 64%, Trichuris 90%, hookworm 2% and Enterobius 1%. The 236 individual blood smears examined were negative. R.T.L.

(451bc) [The full account of this paper appears in *J. Parasit.*, 1951, **37**, 507–514. For abstract see Helm. Abs., **20**, No. 232e.]

(451be) *Brachylaima condylura* n.sp. from *Condylura cristata* captured in Minnesota differs from other species in the extension of the vitellaria to the end of the body, the diameter of the acetabulum is greater than that of the oral sucker and the eggs are larger. This is the first record of *Brachylaima* in this host and in an insectivore in the U.S.A. R.T.L.

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

†bf. REID, W. M., ALLAMAN, L. & FITCH, F., 1951.—" Some factors involved in the hatching of *Hymenolepis diminuta* onchospheres." **37** (5, Sect. 2), Suppl. p. 24.
†bg. FERGUSON, M. S., 1951.—" *Diphyllobothrium latum* in the dog." **37** (5, Sect. 2), Suppl. p. 24.
†bh. FAUST, E. C., NEGHME R., A. & TAGLE V., I., 1951.—" *Diphyllobothrium latum* indigenous in the Lake District of Chile." **37** (5, Sect. 2), Suppl. p. 24.
†bi. KRUIDENIER, F. J., 1951.—" Studies in the use of mucoids by *Clinostomum marginatum*." **37** (5, Sect. 2), Suppl. pp. 25–26.
†bj. RISER, N. W., 1951.—" The procercoid larva of *Lacistorhynchus tenius* (van Ben. 1858)." **37** (5, Sect. 2), Suppl. p. 26.
†bk. KERR, K. B. & WALDE, A. W., 1951.—" The toxicity of tetravalent tin compounds for chickens." **37** (5, Sect. 2), Suppl. p. 26.
†bl. SHORT, R. B., 1951.—" Hermaphroditic female *Schistosomatium douthitti*." **37** (5, Sect. 2), Suppl. p. 26.
†bm. STUNKARD, H. W., 1951.—" Causative agents of swimmer's itch in Narragansett Bay, Rhode Island." **37** (5, Sect. 2), Suppl. pp. 26–27.
†bn. FISCHTHAL, J. H., 1951.—" Ecology of worm parasites in salamanders from south-central New York." **37** (5, Sect. 2), Suppl. p. 27.

(451bf) Hatching of *Hymenolepis diminuta* onchospheres is due to (i) mechanical cracking of the outer membrane by the mandibles of the beetle vector, (ii) digestion by pancreatin of the inner membrane and (iii) direct action by the six hooks of the embryo which, although stimulated to violent activity after the outer shell is cracked, can only escape from the inner membrane with the external aid of digestive enzymes. R.T.L.

(451bg) *Diphyllobothrium latum* developed in 21 out of 25 dogs fed with plerocercoids from great northern pike and walleyes caught at Ely (Minnesota) and Winnipeg (Manitoba). When kept in tap-water at room temperature for 6 to 10 days 85% of the eggs hatched, and the coracidia were infective to several [unnamed] species of *Diaptomus*. R.T.L.

(451bh) In Chile, *Diphyllobothrium latum* has been found in native residents and in dogs on lake shores at about 40°S. latitude. *Salmo irideus*, the only fish incriminated, was introduced years ago from the U.S.A. In Santiago, dogs were experimentally infected with spargana from these fish. R.T.L.

(451bi) The mucoid of the mucin glands of the cercariae of *Clinostomum marginatum* is apparently extruded with the discharge of the histolytic penetration glands with which they are closely associated. R.T.L.

(451bj) Free onchospheres appear in the haemocoele of *Tigriopus fulvus* 1½ hours after this copepod is fed on the eggs of *Lacistorhynchus tenuis*. Details are given of the subsequent growth and development of the procercoid. R.T.L.

(451bl) [The full account of this paper appears in *J. Parasit.*, **37**, 547-555. For abstract see No. 451by below.]

(451bm) The severe dermatitis which has afflicted swimmers and clam diggers in Narragansett Bay, Rhode Island, is due to furcocercous cercariae discharged by *Nassa obsoleta*. The cercariae are practically identical with *Cercaria variglandis* and develop into dioecious schistosomes in experimental birds. The natural hosts are probably migrant shore birds. R.T.L.

(451bn) Of 503 salamanders collected from five counties of south-central New York State 43·7% were infected with [unnamed] helminths belonging to 10 species of trematodes, 3 of cestodes and 9 of nematodes. The incidence, intensity, and number of species present were determined by the habits and habitat preferences of the salamander hosts. R.T.L.

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

†bo. LEVINE, N. D., 1951.—" The effect of some pyridine and piperidine compounds on horse strongyle larvae in manure." 37 (5, Sect. 2), Suppl. p. 27.

†bp. KERR, K. B. & WALDE, A. W., 1951.—" Tetravalent tin compounds as anthelmintics." 37 (5, Sect. 2), Suppl. pp. 27–28.

†bq. REINERTSON, J. W. & THOMPSON, P. E., 1951.—" Chemotherapeutic studies of natural pinworm infestations in mice with reference to screening for new antioxyurid agents." 37 (5, Sect. 2), Suppl. p. 28.

†br. MAYHEW, R. L., 1951.—" Results of feeding small amounts of phenothiazine during the prepatent period of the nodular worm of the calf." 37 (5, Sect. 2), Suppl. p. 28.

†bs. RITCHIE, L. S., HUNTER, III, G. W., PAN, C. & YOKOGAWA, M., 1951.—" Skin-tests for paragonimiasis with antigen from adult worms of *Paragonimus westermani*." 37 (5, Sect. 2), Suppl. p. 28.

†bt. KAGAN, I. G., 1951.—" Acquired immunity in mice infected with *Schistosomatium douthitti* (Cort) (Trematoda: Schistosomatidae)." 37 (5, Sect. 2), Suppl. pp. 28–29.

(451bo) Nicotine sulphate killed all horse strongyle larvae in manure in a concentration of 0·00038 M. and was the most active of the compounds tested. Pyridine and 21 of its other derivatives, and piperidine and 15 of its derivatives were inactive in a concentration of 0·01 M.; 2-vinylpyridine, *sym*-di-(pyridyl-2) ethane and the sulphates of mixed dipyridyls from 2-methylpyridine killed in a concentration of 0·005 M., and mixed dipyridyls from 2-methylpyridine and N-*n*-dodecylpiperidine killed in a concentration of 0·0025 M. R.T.L.

(451bp) Tests on more than 50 tetravalent compounds of tin indicated that many of them are highly efficacious against *Raillietina cesticillus* in chickens, and against *Ascaridia galli* at somewhat higher doses. R.T.L.

(451bq) Eighteen compounds, including those usually recommended for the treatment of *Enterobius vermicularis* in man, were tested for their action against *Syphacia obvelata* and *Aspiculuris tetraptera* in a naturally infected colony of white mice. The drugs were given by oral intubation or in the diet. Gentian violet, crystal violet, phenothiazine, hexylresorcinol and tetrachlorethylene completely eradicated both species. Carbon tetrachloride was active against *A. tetraptera* but not against *S. obvelata*. Thymol, santonin, para-benzylphenyl carbamate and nine compounds not usually regarded as vermifuges failed to eradicate either species. R.T.L.

(451br) During the 28 days following experimental inoculation with larvae of the nodular worm, one calf fed daily with 1·5 gm. of phenothiazine in the grain ration remained negative and four others developed only a very low egg count. When the dosage was fed from the 15th to the 28th day to six calves, three remained negative and three had very low egg counts. The faeces of two calves fed with the same dose during the first 14 days after infection became positive on the 38th day. In one of these the egg count was rather high and in the other it was low. Calves which received the phenothiazine during the last part of the prepatent period, i.e. from the 32nd to the 43rd day, only began to produce eggs after the 53rd day and two of the animals were negative for at least 70 days. R.T.L.

(451bs) Approximately 95% of 87 cases of paragonimiasis gave positive reactions when skin-tested with a merthiolated saline extract of adult *Paragonimus westermanii*. Thirty controls gave two false positives with a 1 : 5,000 dilution but all were negative with dilutions of 1 : 10,000 and 1 : 20,000. R.T.L.

(451bt) Thirty to 120 days after an initial infection with *Schistosomatium douthitti* only 27·03% out of 50 cercariae, which constituted the challenging infection, were recovered in 50 experimental mice as compared with 54·22% in 54 controls. Repeated infection with small numbers of cercariae at intervals of five to six days increased the immunity. With

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

†bu. STIREWALT, M. A., 1951.—" The influence of previous infection of mice with *Schistosoma mansoni* on a challenging infection with the homologous parasite." **37** (5, Sect. 2), Suppl. p. 29.

†bv. HUNTER, III, G. W., RITCHIE, L. S., FREYTAG, R. E., PAN, C., POTTS, D. E. & YOKOGAWA, M., 1951.—" 'Operation Santobrite'—a schistosome snail eradication program in Japan." **37** (5, Sect. 2), Suppl. pp. 31–32.

†bw. MOORE, D. V. & MELENEY, H. E., 1951.—" Comparative susceptibility of common laboratory animals to experimental infection with *Schistosoma haematobium*." **37** (5, Sect. 2), Suppl. p. 32.

bx. NAJIM, A. T., 1951.—" A male *Schistosoma mansoni* with two sets of testes." **37** (6), 545–546.

by. SHORT, R. B., 1951.—" Hermaphroditic female *Schistosomatium douthitti* (Trematoda: Schistosomatidae)." **37** (6), 547–555.

a similar challenging infection, 15·92% of the cercariae were recovered from 11 experimental mice as compared with 51·38% in 10 controls. The males and females which developed from the challenging infections were stunted and reduced in number. An initial infection of female worms gave a similar immunity to superinfection when tested 60 and 121 days after infection. An initial infection of male worms produced a slight immunity when challenged 15 to 168 days after infection. The number of worms which developed from the challenging infection differed little from that in the controls; the males were stunted but the females developed normally. R.T.L.

(451bu) When mice previously infected with *Schistosoma mansoni* were submitted to a challenging infection while the cercariae of the original infection were still in the skin, penetration by the challenging infection was inhibited. If the schistosomulae of the initial infection were migrating through the host or had just reached the portal system a normal proportion of the challenging cercariae penetrated and matured, but if the host had an infection with eggs and adults when the challenging infection was given, there was an apparent reduction in the number of worms from the second infection although penetration had not been inhibited. R.T.L.

(451bv) Santobrite (sodium pentachlorophenate) in the dilution of approximately 1 : 200, was used as a molluscicide in a large-scale field experiment at a village on Kyushu. The initial count after treatment of the irrigation ditches and the edges of the fields or paddies with 20 gallons of the solution for every 150 to 200 feet of ditches, showed a snail reduction of 98·14%. A rise took place in the summer but the count showed that there had been an overall reduction of 90·2% after treatment in the autumn. Counts made after the following spring treatment showed that the snails had then been reduced by 99·5%. R.T.L.

(451bw) Rabbits were completely refractory to percutaneous infection with 1,000 to 11,000 cercariae of *Schistosoma haematobium*. Mice gave a 3% worm recovery when exposed to 150 cercariae each; albino rats and guinea-pigs exposed to 500 cercariae each yielded 0·1% worm recovery. Golden hamsters exposed to 200 cercariae yielded 20% worm recovery and are considered to be the most satisfactory experimental host for *S. haematobium*. R.T.L.

(451bx) In an adult male *Schistosoma mansoni* recovered from the liver of an experimentally infected white mouse, a set of five ovoid testes were present some distance behind the nine testes which were in their normal position. R.T.L.

(451by) Testicular follicles were recognized in 21 out of over 1,350 stained female *Schistosomatium douthitti* recovered from experimentally infected *Peromyscus maniculatus*. They lay behind the ovary, varied in size and shape, had no efferent ducts and were immature. Eighteen of the hermaphrodites were from male-female infections and three from unisexual infections. Apart from the testicular follicles, 11 of the females were normal and the others

† Abstract of paper presented at the 26th Annual Meeting of the American Society of Parasitologists, Chicago, Ill., November 15–17, 1951.

451—Journal of Parasitology (cont.)

bz. BABERO, B. B., 1951.—"*Rauschiella tineri* n.g., n.sp., a trematode (Plagiorchiinae) from a frog." 37 (6), 560–562.
ca. NEILAND, K. A., 1951.—"A new genus of trematode (Lecithodendriidae: Pleaurogenetinae) from the varied thrush." 37 (6), 563–568.
cb. OSWALD, V. H., 1951.—"Three new hymenolepidid cestodes from the smoky shrew, *Sorex fumeus* Miller." 37 (6), 573–576.

showed decreased body size, reduced development of vitellaria and abnormal orientation of the ovary. R.T.L.

(451bz) *Rauschiella tineri* n.g., n.sp. from a Mexican green frog, probably a species of *Rana*, is described, illustrated and differentiated from *Haplometrana, Microderma, Glypthelmins, Alloglyptus* and *Astiotrema*, by different characters from each of these genera. R.T.L.

(451ca) *Macyella postgonoporus* n.g., n.sp. from the varied thrush, *Ixoreus naevius*, is described and illustrated. The new genus differs from all other genera of the Lecithodendriidae by the marginal post-acetabular position of the genital pore. It is included in the Pleurogenetinae which is amended. Keys are given for the 21 genera of Pleurogenetinae and for the four genera of Gyrabascinae which is also amended. Palitreminae is suppressed as a synonym of Pleurogenetinae. R.T.L.

(451cb) *Hymenolepis longi* n.sp. with only eight hooks, *H. serrula* n.sp. with testes in a transverse straight line in the posterior part of the proglottid and a cirrus sac 93–100 μ long, and *H. lineola* n.sp. with the external seminal vesicle dorsal to and the vagina ventral to the cirrus sac, are reported from *Sorex fumeus* collected in Hocking County, Ohio. R.T.L.

452—Journal of Pathology and Bacteriology.

a. BEAUTYMAN, W. & WOOLF, A. L., 1951.—"An Ascaris larva in the brain in association with acute anterior poliomyelitis." 63 (4), 635–647.

(452a) In the thalamus of a child aged six years, in whom there were clinical and pathological evidences of poliomyelitis, an encapsulated Ascaris larva was found post mortem. A possible relationship between the larval migration and the development of the poliomyelitis infection is suggested. R.T.L.

453—Journal of the Philippine Medical Association.

a. PESIGAN, T. P., 1951.—"Analysis of 4,302 cases of schistosomiasis japonica." 27 (4), 203–211.
b. PESIGAN, T. P., PUTONG, P. B., GARCIA, E. G. & MILLAR, C. A., 1951.—"Intradermal test for schistosomiasis japonica (preliminary report)." 27 (4), 212–219.
c. PESIGAN, T. P. & BELTRAN, A. M., 1951.—"Studies on liver function tests in schistosomiasis japonica." 27 (4), 220–226.
d. PESIGAN, T. P. & BANZON, T. C., 1951.—"Hematological studies in schistosomiasis japonica." 27 (4), 227–233.
e. PESIGAN, T. P., BASACA-SEVILLA, V., PANGILINAN, M. V., SANIEL, V. F., GARCIA, E. G., BANZON, T., BELTRAN, A., PUTONG, P. B. & MILLAR, C. A., 1951.—"Evaluation of fuadin therapy in schistosomiasis japnonica." 27 (4), 234–241.
f. PESIGAN, T. P., PANGILINAN, M. V., SANIEL, V. F., GARCIA, E. G., BANZON, T. C. & PUTONG, P. B., 1951.—"Field studies on the treatment of schistosomiasis japonica with nilodin." 27 (4), 242–247.
g. PANGILINAN, M. V., 1951.—"Survey in Panguil Bay area." 27 (4), 249–251.
h. BASACA-SEVILLA, V., 1951.—"Survey in Leyte." 27 (4), 252–253.
i. SANIEL, V. F., 1951.—"Survey in Mindoro." 27 (4), 254–255.
j. GARCIA, E. G., 1951.—"Survey in Sorsogon." 27 (4), 256–257.
k. BANZON, T. C. & BELTRAN, A. M., 1951.—"Survey in Samar." 27 (4), 258–259.
l. MILLAR, C. A. & PUTONG, P. B., 1951.—"Surveys in Surigao and Agusan." 27 (4), 259–261.
m. ANON., 1951.—"Summary of all streams and swamps surveyed positive for *Oncomelania quadrasi* snails." 27 (4), 262–267.

n. ANON., 1951.—" Summary of all streams and swamps treated chemically with DN compound." **27** (4), 268–270.
o. LEON, W. DE, 1951.—" On schistosomiasis research in the Philippines." [Editorial.] **27** (4), 271–273.
p. PESIGAN, T. P., 1951.—" An annotated bibliography of available articles on schistosomiasis japonica based on Philippine materials from 1906 to 1950." **27** (4), 275–327.
q. RECIO, P. M., 1951.—" Schistosomiasis and malaria from the surgeon's viewpoint." **27** (5), 373–378.
r. RAMAS, R., 1951.—" Schistosomiasis research. An observation." **27** (12), 751–756.

(453a) An analysis is given according to age and sex incidence, of 4,302 cases of schistosomiasis japonica found by six field units in 39,604 of the inhabitants of 35 towns in 10 provinces of the Philippines. The cases are graded under five headings in a conventional classification which was adopted by the field units. [For abstracts of reports of the field units see Nos. 453g–453 l below.] R.T.L.

(453b) The intradermal test may extend our means of diagnosing schistosomiasis japonica, especially in mass screening campaigns or mass stool surveys, but to be of real significance a potent standardized antigen, freshly prepared, should be used. For routine use a dose of 0·01–0·02 c.c. of 1 : 1,000 or 1 : 2,000 dilution of adult antigen solution, prepared by Gonzales & Pratt's technique, is recommended. With cercarial antigen, prepared by a modified Alves & Blair technique, fairly good results were obtained with 0·1 c.c. of a 1 : 600 dilution. The intradermal test in 358 cases with schistosome eggs in their faeces was positive in 68·9%–93·3%; when doubtful positives were excluded the percentage fell to 76·5%. R.T.L.

(453c) Liver function tests made on 96 schistosomiasis japonica cases before, during and after a course of treatment with fouadin, showed that the bile flow was not interfered with, except in a few cases in the late stage of the disease. Liver cell damage was not appreciable in the early stages but became apparent later and depended on the degree of cirrhosis present. Fouadin did not aggravate the existing condition of the liver and appeared to improve it in early cases. R.T.L.

(453d) From a study of 95 Filipino patients with *Schistosoma japonicum* eggs in their faeces, it would seem that certain hepatic changes affect the blood picture. In the early stages there was a strong tendency to produce macrocytic hypochromic anaemia, a leucocyte count from 11,038 to 15,376 and an eosinophilia of 25·13% to 28·26%. The sedimentation rate was increased and target cells were present in 68% of these cases. During treatment with fouadin, the anaemia tended in the early stages to become normocytic hypochromic in type and in the late stages to remain macrocytic. The leucocyte counts decreased slightly. Target cells were present in 80% of the cases. After fouadin treatment the anaemia was normocytic hypochromic in almost all stages, with some leucocytosis and eosinophilia ranging from 28·14% to 35·44%. Target cells were seen in 77% of the cases. It was observed with surprise that in a group of patients showing hookworm and schistosome ova, the anaemia was of macrocytic hypochromic type instead of the more common microcytic hypochromic type seen in hookworm anaemia cases in Filipinos. R.T.L.

(453e) Only 1,135 out of 2,407 patients with *Schistosoma japonicum* eggs in the faeces were able to complete one course of 40 c.c. of fouadin given intramuscularly in nine injections. Of these, 1,083 were followed up during and after treatment. At the end of the single course 847 (78·21%) ceased to pass viable eggs, and 236 (21·79%) were still positive; 62 of the 236 positives received additional injections until they became negative. At the end of treatment 909 (83·91%) were negative on stool examination, but one month afterwards 9·28% of the 334 who were followed up were again positive. Toxic reactions appeared in 718 (63·3%) of all the patients but the course was completed by prolonging the interval between injections as long as the toxic reactions were present. In the light of these studies fouadin is considered to be a fairly effective treatment. R.T.L.

(453f) Nilodin was tested in 238 cases of schistosomiasis japonica. The total dosage per treatment was 60 mg. per kg. body-weight in divided doses for three to six days. Of 233 cases who completed the course, 218 (93·24%) were still positive and showed viable eggs from one to four weeks later. Only 13 (5·4%) became negative. Toxic reactions occurred in 229 (96·6%) but were usually too mild for treatment to be stopped. These results indicate that nilodin in the same dosages as used in infections with *Schistosoma haematobium* and *S. mansoni* is not effective against *S. japonicum*. R.T.L.

(453g) In the Panguil Bay area of Mindanao 698 instances of *Schistosoma japonicum* infection were found in 6,147 (11·3%) direct faecal smears. Chiefly schoolchildren were examined. The distribution of the cases in the different barrios in each town surveyed is tabulated. Twenty-six streams contained *Oncomelania quadrasi*. Two maps indicate the endemic areas discovered. R.T.L.

(453h) Of 14,061 stools from persons, chiefly schoolchildren, examined in nine towns in eastern Leyte 2,310 (16·4%) were positive for *Schistosoma japonicum* eggs. Their distribution by towns and barrios is tabulated. Of these cases 1,135 received fouadin but only 398 were able to complete at least one course of injections. The locations of *Oncomelania quadrasi* are shown on a map. R.T.L.

(453i) Of 6,713 persons in north-eastern Mindoro who were examined for *Schistosoma japonicum* eggs, 606 (9·03%) were positive. The distribution of these cases is tabulated. Fouadin treatment was given to 461 but only 145 completed the full course of nine injections. The locations of *Oncomelania quadrasi* are shown on a map. In some areas 55% of the snails examined were infected. R.T.L.

(453j) In the town of Irosin on the island of Sorsogon, 2,399 individuals were examined for eggs of *Schistosoma japonicum*; 136 (5·66%) were positive. In Juban 16 (5·44%) out of 294 persons examined were positive. The case distribution is tabulated and the localities in which *Oncomelania quadrasi* were found are shown on a map. The infection rate in the snails ranged from 2% to 26%. Of 70 persons treated with fouadin only 37 completed one course of nine injections. No *O. quadrasi* or cases of schistosomiasis japonica were found in the towns of Matnog, Sta. Magdalena and Bulan. R.T.L.

(453k) This survey covers only the towns of Bobon and Catarman in northern Samar; 2,593 stools, chiefly of schoolchildren, showed *Schistosoma japonicum* eggs in 231 (8·91%). The incidence of these cases is tabulated by barrios, and the localities where *Oncomelania quadrasi* were found are shown on a map. R.T.L.

(453 l) In the two adjacent provinces of Surigao and Agusan in north-eastern Mindanao around Lake Mainit, the faeces of 305 out of 3,302 of the inhabitants (9·2%) were positive for *Schistosoma japonicum*. The case distribution is tabulated by barrios and two maps show endemic areas where *Oncomelania quadrasi* were found. Two new endemic foci were discovered in Ampayon and Los Angeles near Butuan City. R.T.L.

(453m) In this Appendix the density of *Oncomelania quadrasi* per square metre and the percentage of molluscan infection with *Schistosoma japonicum* are tabulated under the places surveyed. R.T.L.

(453n) In this Appendix are tabulated the places surveyed, the snail [*Oncomelania quadrasi*] density per square metre before and after treatment with DN compound and the date of treatment. R.T.L.

(453p) This annotated bibliography of papers on schistosomiasis japonica published between 1906 and 1950 and based on Philippine material contains 112 articles by 128 investigators. A supplementary list cites 20 titles of articles which were not available to the author. R.T.L.

(453q) Schistosomiasis japonica is endemic in the region around Lake Naujan in the Philippines. Recio draws the attention of the surgeon to the clinical manifestations of schistosome infections of the colon, rectum and appendix, brain, liver and spleen. The bladder may become involved in schistosomal granulomata of the rectum and be mistaken for cancer. R.T.L.

(453r) Ramas describes the work and results obtained in the Kapatagan area by a field unit of the Division of Schistosomiasis of the Department of Health of the Philippines. The streams were surveyed for the molluscan vector, *Oncomelania quadrasi*. Cases were identified by stool examination and in some instances by intradermal test. In the barrio of Durumawang, Lala, 80% of the population were found to be infected. Eight streams were sprayed with a sodium pentachlorophenate named DOW-G which killed not only snails and fish but also plants. Its use in rice paddy fields is of questionable value. Indigent patients were treated with fouadin free of charge and, owing to the limited supply of the drug available, by lottery. R.T.L.

454—Journal de Radiologie et d'Électrologie.

a. FORSTER, E., WARTER, P., KIM, M. & RABER, R., 1951.—" Kyste hydatique du ventricule gauche." 32 (3/4), 441.

455—Journal of the Royal Egyptian Medical Association.

a. HALAWANI, A., 1951.—" Endemic diseases control." 34 (6), 347–358.
b. NOR EL-DIN, G., 1951.—" Recent advances in the treatment of intestinal parasites." 34 (7), 449–461.
c. DAWOOD, M. M., 1951.—" Bilharziasis in Bilad El Nuba in Egypt." 34 (9/10), 660–669.

(455a) A new scheme for combined control of the major endemic diseases has been put into operation by Halawani at Fayed in Egypt in an area 7 km. long and 1 km. wide, lying between the Bitter Lake and the Sweetwater Canal. Bilharziasis is, in the author's opinion, not so much an occupational disease as a disease of childhood. Intensity of infection is very high in children and is low in persons over 30 years old. Infected snails are much more frequent in those canals which are near human habitations and particularly in those contaminated with human excrement. As cercarial infection in *Bulinus contortus* or *Planorbis boissyi* was present within a radius of half a kilometre from the centre of the villages examined, copper sulphate was used in the canals running through the villages and in their neighbourhood for a distance not exceeding 1 km. The Sweetwater Canal was treated by dragging sacks of copper sulphate in the water along both sides and the small canals were treated monthly. The whole area covered 5,000 acres with a population of 57,000. The annual cost was £360 for labour and £250 for copper sulphate. This campaign freed the canals from Bulinus and Planorbis after each monthly treatment, whereas in an untreated control area snails were caught in all the palm leaf traps. Monthly treatment does not allow sufficient time for reintroduced snails to develop cercariae. Bored-hole latrines were made in the villages and tube wells supplied sufficient water for drinking, washing and bathing. For the control of filariasis hetrazan has proved successful in reducing the microfilariae in the peripheral blood to a level which is not sufficient to infect *Culex pipiens*. This drug was used for the treatment of all persons infected with filariae as a preventive measure and wells were permanently closed. R.T.L.

(455b) Nor El-Din gives an account of his recent experiences in cases of (i) taeniasis treated with atebrin, chloroquine, carbon tetrachloride, pumpkin seeds and concoction, and tin tablets; (ii) *Hymenolepis nana* treated with atebrin, chloroquine, and nivaquine; (iii) Ascaris treated with hetrazan, which for children is as effective as hexylresorcinol and is preferable to oil of chenopodium; (iv) Enterobius treated with phenothiazine, *p*-benzylphenyl-carbamate (Diphenan, Lubisan, etc.), and antihistamine compounds (Phenargan, Benadryl and pyribenzamine). R.T.L.

(455c) A visit to Nubaland which lies between the Aswan Dam and the Sudan has convinced Dawood that the Nile itself is definitely a source of bilharzial infection. The Nile is the only source of water for the towns and villages which are on the hills of the banks of the river. Bilharzia infection is widespread. *Bulinus contortus* was found in great numbers at every quay from Shallal to Eneiba and could easily be collected by scraping the river bottom one metre under the water surface, near the shore. When the water level falls, the molluscs can be found on the wet sand. *Potamogeton crispus*, the plant most favoured by *Bulinus*, was absent from the region but "Chara" algae which grew on the rocks may provide the necessary food. In Nubaland, it is impossible to introduce sufficient copper sulphate into the river or to dry the river out. The provision of artesian wells is suggested. During the dry season, large numbers of snails on the shores are killed by dryness and by strong solar radiation. Some survive but, even when protected from the sun by vegetation, tremendous numbers die within five days. Examination of scrapings of the rectum often reveals infection in cases where the urine and faeces have been negative. R.T.L.

456—Journal of the Royal Naval Medical Service.

a. MALLOWS, H. R., 1951.—" Two cases of dracontiasis." 37 (4), 211–213.

(456a) Two cases of guinea-worm in Indian seamen who were serving in R.F.A. oilers at Hongkong are described. The infection is not endemic in Hongkong. [The earlier movements of the patients are not recorded.] R.T.L.

457—Journal of Science of the Hiroshima University. Series B, Division I. Zoology.

a. OZAKI, Y., 1951.—" Studies on the miracidium of trematodes. I. The miracidia of *Paramphistomum explanatum* (Creplin), *P. orthocoelium* Fischoeder and *Gastrothylax cobboldi* Fischoeder." 12 (1/14), 99–111.

b. OZAKI, Y. & OKUDA, Y., 1951.—" Preliminary note on the life-history of *Liolope copulans* Cohn." 12 (1/14), 113–119.

(457a) Ozaki has studied the morphology of the miracidia of *Paramphistomum explanatum, P. orthocoelium* and *Gastrothylax cobboldi* in considerable detail. He finds in all three species that the formula for the epithelial cells is 6 : 8 : 4 : 2, that sense organs are present between the first and second tiers of epithelial cells, that both circular and longitudinal muscles lie between the basement membrane and the sub-epithelial cells, and that only one pair of cephalic glands is present. The miracidium of *P. orthocoelium* is larger than that of *P. explanatum* or of *G. cobboldi* but the germarium is smaller. S.W.

(457b) Ozaki & Okuda found that 45 out of 64 *Moroco steindachneri* collected in the Oasa district, Japan, were infected with metacercariae of *Liolope copulans*. The cysts were usually found in the muscles but also occurred under the skin and on the operculum and fins. Measurements of the metacercariae are tabulated; the reproductive organs were found to be almost mature and the excretory vesical is peculiar, consisting of a pair of rings opening into a common duct just anterior to the excretory pore. Infected fish were fed to *Megalobatrachus japonicus* and young *Liolope copulans* were found in the duodenum seven days later. S.W.

458—Journal of the South African Veterinary Medical Association.

a. MALHERBE, W. D., 1951.—" The diagnosis of *Filaroides osleri* (Cobbold 1897) infestation." 22 (3), 129–130.

(458a) The nodules containing *Filaroides osleri* are usually in the lower part of the dog's trachea and diagnosis during life is only possible occasionally. Malherbe introduces a simple and effective technique. After general anaesthesia has been induced by intravenous injection of "Intraval" sodium (thiopentone sodium), a moistened gauze swab in a wire holder is pushed through the larynx and down the trachea as far as possible without

resistance, moved from side to side and then withdrawn. The swab is detached from the holder and the mucus squeezed on to a slide or rinsed and squeezed in about 6–10 c.c. of water which is then centrifuged. The embryonated eggs are easily found under a low magnification and a high power lens enables the characteristic kink in the larval tail to be recognized. R.T.L.

459—Journal of the Tennessee Academy of Science.

a. WARD, H. L., 1951.—" The species of Acanthocephala described since 1933. I." **26** (4), 282–311.

(459a) Ward gives a brief résumé of the characters of the new families, genera and species of Acanthocephala which have been described since the publication in 1932–33 of Meyer's monograph which contained descriptions of all the species known at that date. The phylum Acanthocephala is now comprised of five orders containing 77 genera. R.T.L.

460—Journal of the University of Bombay. Section B, Biological Sciences.

a. KARVE, J. N. & NAIK, G. G., 1951.—" Some parasitic nematodes of fishes—II." **19** (5), 1–37.

(460a) Karve & Naik supplement their earlier account of nematodes parasitic in Indian fresh-water fishes [for abstract see Helm. Abs. **10**, No. 438a]. The following are described as new: (i) *Spironoura kaverii* n.sp. from *Barbus carnaticus* which is distinguished from *S. lambdiense* by the greater length of the spicules which are 2·0 to 2·225 mm. long. (ii) *Spironoura kalasiensis* n.sp. from *Scaphiodon nashii* approaches *Spironoura barbi, S. leptocephala* and *S. cryptobranchi*. (iii) *Metabronema notopteri* n.sp. from *Notopterus notopterus* resembles *M. salvelini* but has eight pairs of post-anal papillae. (iv) *Spinitectus mastacembeli* n.sp. from *Mastacembelus armatus* and *N. notopterus* differs from *S. ranae* in having eight pairs of post-anal papillae; it may be identical with *S. minor*. (v) *Spinitectus notopteri* n.sp. from *N. notopterus* has 16 pairs of caudal papillae. (vi) *Spinitectus neilli* n.sp. from *Barbus neilli* has a short buccal capsule, the spinous rings are interrupted, the left spicule is relatively small and there is no ovejector. (vii) *Rhabdochona glyptothoracis* n.sp. from *Glyptothorax lonah* differs from *R. kashmirensis* which has spicules with bifurcated tips; the number and arrangement of the post-anal papillae are also different. (viii) *Rhabdochona barbi* n.sp. from *Barbus kolus* and *B. khudree* is similar to *R. anguillae* but differs in several measurements. (ix) *Rhabdochona sarana* n.sp. from *Barbus sarana* is characterized by a stumpy projection on the tail of the female which has a very short vagina. (x) *Procamallanus bagarii* n.sp. from *Bagarius yarrelli* and *Callichrous bimaculatus* approaches *P. fulvidraconis* but has seven pairs of long, pedunculate, rib-like, pre-anal and at least six pairs of post-anal papillae; there is an accessory piece. Larvae of species of *Contracaecum* were found in 11 fresh-water fishes. There are 36 figures in the text. R.T.L.

461—Journal d'Urologie Médicale et Chirurgicale.

a. COMPAGNON, L., 1951.—" Un cas de kyste hydatique du rein." **57** (1/2), 102.

462—Journal of Urology.

a. SANJURJO, L. A. & KOPPISCH, E., 1951.—" Manson's schistosomiasis with unilateral involvement of kidney." **66** (2), 298–304.

463—Journal of the Washington Academy of Sciences.

a. TIMM, R. W., 1951.—" A new species of marine nematode, *Thoracostoma magnificum*, with a note on possible 'pigment cell' nuclei of the ocelli." **41** (10), 331–333.

b. OTEIFA, B. A., 1951.—" Effects of potassium nutrition and amount of inoculum on rate of reproduction of *Meloidogyne incognita*." **41** (12), 393–395.

(463a) A marine nematode 24 mm. long from Alaska, named *Thoracostoma magnificum* n.sp., is described and illustrated. Timm has observed two large nuclei of the

oesophagus a short distance behind the ocelli: they lie in accessory subventral gland ducts filled with ocellus pigment granules and lead to the eyes. They are the first two nuclei of the oesophagus and represent marginal nuclei which may function in controlling pigment production. R.T.L.

(463b) When potassium was applied as a nutrient to lima bean plants grown in sand cultures inoculated with *Meloidogyne incognita* in small amounts, nematode reproduction rates were apparently limited by the amount of potassium available, but with higher potassium concentration and a relatively larger inoculum, the rates of reproduction tended to be correlated with the amount of root available and with competition for root space. R.T.L.

464—Journal of Wildlife Management.

a. CHEATUM, E. L., 1951.—" Disease in relation to winter mortality of deer in New York." 15 (2), 216–220.

(464a) A positive correlation exists between the incidence and intensity of the lungworm, *Leptostrongylus alpenae*, and the pneumonias which are frequently fatal to white-tailed deer [*Odocoileus virginianus borealis*] during severe winters in New York State. Malnutrition and lack of adequate shelter are additional basic factors. Deer appear to be normal hosts for *Fascioloides magna* and can tolerate a comparatively heavy infection. R.T.L.

465—Khirurgiya. Moscow.

a. BAKULEV, A. N. & MEDVEDEV, I. A.—[Ideal cystectomy of the lung.] Year 1951, No. 3, pp. 15–20. [In Russian.]
b. FRANKENBERG, B. E. & SHVARTS, Y. E., 1951.—[Ideal cystectomy in pulmonary echinococcosis.] Year 1951, No. 3, pp. 20–26. [In Russian.]
c. YAKIMIUK, D. I., 1951.—[Case of echinococcosis of the skeletal muscles.] Year 1951, No. 3, pp. 56–57. [In Russian.]
d. KHRISTICH, A. D., 1951.—[Complications during the transplantation of ureters into the intestinal tract, caused by ascariasis.] Year 1951, No. 8, pp. 85–86. [In Russian.]

466—Kieler Meeresforschungen.

a. GERLACH, S. A., 1951.—" Revision der Metachromadoracea, eine Gruppe freilebender mariner Nematoden." 8 (1), 59–75.
b. GERLACH, S. A., 1951.—" Nematoden aus der Familie der Chromadoridae von den deutschen Küsten." 8 (1), 106–132.

(466a) Gerlach widens the scope of the genus *Metachromadora* Filipjev to include *Metachromadora, Chromadoropsis, Bradylaimus, Neonyx* and *Metonyx*. The genus *Parachromadora* Schulz is made synonymous with *Sigmophora* Cobb. *Metachromadora remanei* n.sp. is described and figured. T.G.

(466b) Gerlach describes and figures 23 marine nematodes belonging to the family Chromadoridae collected from the German coast. The following four species are new to science, viz., *Spilophorella candida* n.sp., *Hypodontolaimus schuurmans-stekhoveni* n.sp., *Neochromadora tecta* n.sp., and *Chromadora axi* n.sp. T.G.

467—Kitasato Archives of Experimental Medicine.

a. TAKATA, I., 1951.—" Experimental infection of man with Ascaris of man and the pig." 23 (4), 49–59. [Also in Japanese pp. 151–159.]

(467a) Takata critically reviews earlier attempts to produce cross-infections of man and pig with the porcine and human strains of *Ascaris lumbricoides*. His experiments on 17 human volunteers show that pig Ascaris can attain full sexual maturity in the human body. On the sixth day after infection cough, expectoration, fever and headache occurred and the eosinophils increased slightly. Eggs appeared in the faeces in seven cases in from 30–75 days but disappeared after 5–11 days in four cases and after 95–101 days in three

cases, whereas in volunteers who received infection with the human strain of Ascaris the eggs did not disappear from the faeces until an anthelmintic was administered. Takata concludes from these results that it is correct to regard the pig strain as a subspecies, *Ascaris lumbricoides* var. *suum*. R.T.L.

468—Klinicheskaya Meditsina. Moscow.

a. DANILUSHKINA, G. A., 1951.—[Clinical aspect of trichinelliasis.] **29** (6), 74–76. [In Russian.]
b. OSNOVINA-LOMOVITSKAYA, A. D., 1951.—[Clinical aspect of hepatic echinococcosis.] **29** (7), 71–73. [In Russian.]
c. VAISLEIB, M. Y., 1951.—[Pernicious-like anaemia following ascariasis.] **29** (8), 80–82. [In Russian.]

469—Klinische Wochenschrift.

a. LENDLE, L. & SCHNEIDER, H. H., 1951.—"Zur Frage der Giftigkeit des Insecticids HCC als Oxyurenmittel." **29** (21/22), 388–389.
b. SCHWONZEN, T., 1951.—"Über Serumeiweissveränderungen bei Trichinose (unter Berücksichtigung der Elektrophorese)." **29** (35/36), 612–615.

(469a) Lendle & Schneider report that benzene hexachloride, which has recently been recommended for the treatment of enterobiasis, is relatively less toxic when given orally to rats than when it is administered intraperitoneally. The acute lethal doses, in mg. per kg. body-weight, were: technical mixture, orally 1,000, intraperitoneally 400 and pure γ-fraction, orally (100–) 200, intraperitoneally 50. Repeated doses may have a cumulative effect, and 25% of the lethal dose given daily for three to six days can cause spasms and death. Treatment should therefore be given in single doses and the use of the technical mixture rather than the pure γ-fraction is recommended. Experiments on earthworms and enchytraeids showed that the technical mixture with 15% γ-fraction was just as effective as the γ- and δ-fractions. A.E.F.

(469b) Schwonzen has studied the serum albumin of eight severe cases of trichinelliasis, using both the Takata reaction and electrophoresis. He found that there was in all cases an increase in γ-globulin which was correlated with the severity of the infection: in the worst case the γ-globulin reached 50%. The increase first appeared in the second to third week of infection, reached a peak at about the eighth week, and then gradually returned to normal. Schwonzen considers that this reaction is due to increased antibody formation. He discusses the application of γ-globulin increase to the diagnosis and prognosis of trichinella infection. A.E.F.

470—Konevodstvo.

a. BOBILEV, I. F., 1951.—[The use of phenothiazine for worming horses with strongylosis and parascariasis.] **21** (7), 26–31. [In Russian.]

(470a) Out of 570 horses which were well looked after, 412 (87·7%) were infected with helminths. Treatment with phenothiazine mixed with wet bran or oats, in two doses each of 35–50 gm. at an interval of 3–5 days was very effective. Strongyles were passed out in 8–12 days. There were no after effects and it was not necessary to interrupt the horses' work. Toxicity tests showed that phenothiazine, even when given in 60 gm. doses to three horses and 100 gm. to one horse, produced no ill effects. C.R.

471—Kongelige Norske Videnskabers Selskabs Forhandlinger.

a. ALLGÉN, C. A., 1951.—"Zur Kenntnis norwegischer Nematoden. XXIII. Noch einige freilebende Nematoden von der Insel Tautra im Trondheimsfjord." Year 1950, **23** (24), 98–102.

(471a) In making a re-examination of his preparations of marine nematodes collected in 1947 on the island of Tautra in Trondheimsfjord, Allgén found the two following forms new to science, *Hypodontolaimus sivertseni* n.sp. and *Theristus tenuicaudatus* n.sp. T.G.

472—Lancet.

a. BECKER, B. J. P. & JACOBSON, S., 1951.—" Infestation of the human brain with *Coenurus cerebralis*. A report of three cases." Year 1951, 2 (6675), 198–202.
b. LOUGHLIN, E. H., RAPPAPORT, I., JOSEPH, A. A. & MULLIN, W. G., 1951.—" Treatment of human ascariasis with hetrazan. The use of a syrup containing 1-diethylcarbamyl-4-methyl piperazine dihydrogen citrate (hetrazan)." Year 1951, 2 (6696), 1197–1200.
c. BECKER, B. J. P. & JACOBSON, S., 1951.—" Infestation of the human brain with *Coenurus cerebralis*. Report of a fourth case." Year 1951, 2 (6696), 1202–1204.

(472a) Becker & Jacobson express the view that although only three cases of human infection with *Coenurus cerebralis* have been recorded in medical literature, it is not uncommon in sheep-rearing countries. They describe the clinical symptoms, diagnosis, treatment and postoperative courses of three cases seen by them in South Africa. The signs and symptoms are not clear cut. Diagnosis is based on (i) headaches of long duration, (ii) variability of cerebral neurological signs, (iii) eventual severe papilloedema, (iv) increased amount of protein in the cerebrospinal fluid and a cellular response, (v) history of association with sheep and dogs. The hydatid complement-fixation test which was positive in two of the three cases is valueless as none of the patients had a hydatid cyst. In addition to the three reported cases they have eleven other patients with similar syndromes. R.T.L.

(472b) That previous observers did not obtain completely satisfactory results in the treatment of ascariasis with hetrazan was probably because the dose was insufficient. The series of observations now recorded indicate that the optimum dose in tolerance and effectiveness is about 6 mg. per kg. body-weight given in tablet form three times daily for five days, but it is more easily administered in a cherry-flavoured syrup diluted with water and containing 30 mg. of the dihydrogen citrate salt. The reduction in e.p.g. of faeces in patients treated with the syrup at the rate of 13 mg. per kg. body-weight for three days and those with 13 mg. per kg. on the first day and 20 mg. per kg. on the second and third day are tabulated. The anthelmintic efficiency is 91% to 94% based on the assumption that 2,000 eggs in the faeces represents a pair of adult worms. R.T.L.

(472c) Becker & Jacobson give clinical and pathological notes on a fourth case of cerebral coenuriasis in man seen by them in Johannesburg. A large collection of closely packed cysts, several of which were sterile, were found in the posterior fossa, in the anterior aspects of the medulla oblongata and at the dilated foramen of Magendie. At a second operation numerous cysts were found in the fourth ventricle. After a stormy convalescence the patient recovered. R.T.L.

473—Landbonyt. Copenhagen.

a. OLSEN, H. K., 1951.—" Blandsaedens synder." 5 (6), 251–255.

(473a) Barley and oats are to a great extent grown as a mixed crop in Denmark. Olsen points out that this is of great importance in encouraging the spread of the oat nematode (*Heterodera major*) in the soil. For its control oats ought to be grown only once in 8 years, but in a rotation in which mixed crop is grown once and oats once the nematode causes severe damage. S.B.

474—Landbouwtijdschrift. Brussels.

a. LATTEUR, J. P., 1951.—" De leverbot een kwaal die niet te onderschatten is." 4 (12), 1583–1599. [English & German summaries p.1599.]

(474a) An outline of the biology of trematodes of pathogenic importance and their vectors is followed by an account of the principal facts concerning the mode of spread, control and treatment of *Fasciola hepatica*. R.T.L.

475—Maandblad voor de Landbouwvoorlichtingsdienst.

a. BEIJERS, J. A., 1951.—" Bestrijding der leverbotziekte (ongans) bij schapen." 8 (7), 279–283.

(475a) Beijers points out that liver-fluke disease is widespread among sheep in the Netherlands: it has been estimated that this infection is responsible for an annual loss of one and a half million guilders (£150,000). He describes the symptoms and outlines in non-technical language the life-history and bionomics of the liver-fluke and its snail intermediary. The most important control measure is snail destruction and for this Beijers recommends the application of fine, dry salt to all ditches (and to a width of at least half a metre on each side) at a rate of 15 kg. per 100 metres. Two dressings should be given each year, *either* (i) between mid-April and mid-May and again between mid-July and mid-August, *or* (ii) between mid-September and early October and again between mid-April and mid-May. The salt should be applied in calm weather and when ditches are dry. A further important control measure is the treatment of infected sheep with carbon tetrachloride or other suitable anthelmintic: this should be carried out under the direction of a veterinary surgeon. A.E.F.

476—Maandschrift voor Kindergeneeskunde.

a. BOTMAN, T. P. J., 1951.—" Arachnoiditis posterior nematoides." 19 (4), 141–144. [English & French summaries p. 144.]

(476a) Botman briefly reviews published work on the pathological lesions in the brain of animals exposed to heavy infections with *Ascaris lumbricoides*, *Strongyloides stercoralis* and hookworms. Some authors believe that meningitis may accompany Ascaris infection in man and is provoked by a toxin produced by the adult worms. During an epidemic of encephalitis, several cases were examined for histopathological changes. In a Chinese boy one year old who died of arachnoiditis, Ascaris larvae were demonstrable in the meninges. As pneumonitis may possibly have been a complication, the cause of death was not definitely determined. P.L.leR.

477—Maanedsoversigt over Plantesygdomme.

a. BOVIEN, P., 1951.—" Angreb af nematoder (*Ditylenchus* sp.) på champignonsmycel." No. 316, p. 10. [English summary p. 10.]

(477a) In compost from mushroom beds where the spawn had failed to develop, a species of *Ditylenchus* occurred in huge numbers. It has six incisures in the lateral field and the tip of the tail is finely rounded and it is believed to be closely related to, if not identical with, *D. destructor* Thorne. The nematodes could easily be cultured on agar plates inoculated with a fungus. It seems highly probable that the growth of the mushroom spawn is hampered by the presence of these nematodes although this has not yet been proved experimentally. S.B.

478—Maroc Médical.

a. PAGÈS, R. & GAUD, J., 1951.—" A propos de la filariose au Maroc. Un cas de parasitisme humain par gongylonème." 30 (313), 584–585.
b. PARRES, A., 1951.—" Kyste hydatique du rein." 30 (315), 694–696.
c. BOLOT, F., 1951.—" Kyste dermoïde calcifié du pôle supérieur du rein." 30 (315), 700.
d. CROZES, M., 1951.—" La bilharziose vésicale au Maroc." 30 (315), 726–727.
e. LAPIDUS, M., 1951.—" Uréthrite chronique et bilharziose vésicale." 30 (315), 729.
f. COIQUAUD, A. & DUVEZIN, B., 1951.—" Sur un cas de kyste hydatique du pôle inférieur de la rate, diagnostiqué par rétro-pneumo-péritoine." 30 (316), 790.
g. TAPIE, J., LAPORTE, J.. ENJALBERT, ECHAPASSE & MOREAU, 1951.—" Caverne tuberculeuse du lobe moyen prise pour un kyste hydatique et traitée avec succès par lobectomie." 30 (318), 1024–1028.

h. CHEVRET, R. & CHALLIOL, J., 1951.—"Traitement chirurgical des kystes hydatiques du poumon." 30 (318), 1116–1119.

(478a) Two damaged female filarial worms, one mature and one immature, each about 50 mm. in length, which were extracted at an interval of 15 months from the buccal mucosa of a 24-year-old woman at Rabat, Morocco, were diagnosed as *Gongylonema pulchrum*. P.M.B.

(478d) Crozes discusses other authors' work on the distribution of a relatively mild form of schistosomiasis haematobia in Morocco where the vectors are *Bulinus contortus* and, much more rarely, *Planorbis metidjensis*. The native Moroccans are much more resistant to the disease than are the Europeans. At Marrakesh he found that the number of cases varied very much from one year to another in accordance with variations in the snail population. P.M.B.

479—Médecine Tropicale. Marseilles.

a. DÉJOU, L., 1951.—"Les localisations profondes de la dracunculose (péritonéales et juxta-péritonéales en particulier)." 11 (4), 645–652.
b. HUARD, P., VU-CONG-HOE & TRAN-ANH, 1951.—"Un cas d'hématochylurie filarienne suivie de nécropsie." 11 (6), 911–914.
c. VU-CONG-HOE, 1951.—"Contribution à l'étude anatomo-pathologique des lésions filariennes de l'appareil uro-génital en Indochine." 11 (6), 915–920.
d. PFISTER, R., 1951.—"Note sur la présence, en Haute-Volta (A.O.F.) de *Microfilaria* (=*Dipetalonema*) *streptocerca* (Macfie et Corson, 1922)." 11 (6), 935–938.

(479a) Déjou enumerates various peritoneal and juxta-peritoneal locations of encysted or calcified *Dracunculus medinensis* observed at Dakar. These cases include the only known instance of a guinea-worm free in the peritoneal cavity. A case is described of a dead and partially encysted worm attached to the gastrocolic ligament. Déjou draws attention to the difficulty of diagnosing infections of this type. P.M.B.

(479b) From the autopsy of a case in which filarial haematochyluria of ten years' duration was the direct cause of death, Huard *et al.* conclude that chyluria should not be regarded as a benign condition owing to the probable effect on the renal function; chronic haematuric nephritis is relatively frequent among those infected with filariasis in northern Viet-Nam. P.M.B.

(479c) From a study in Indo-China of the pathological anatomy of 25 cases of filariasis of the urogenital system and of the concomitant changes in the associated worms the author concludes that the tissue reactions are identical with those observable in other chronic inflammatory diseases, apart from a certain predilection for the lymphatic system. He questions if there is a specific histological picture in filariasis. R.T.L.

(479d) The first occurrence of *Microfilaria streptocerca* in French West Africa is recorded in four out of 867 plantation workers from the Koudougou region of the Upper Volta examined at Bobo-Dioulasso, when in transit to the Ivory Coast. The infection is considered to have been acquired in their own territory. *Wuchereria bancrofti* occurred in 16, *Onchocerca volvulus* in 21 and *Acanthocheilonema perstans* in 160 of the workers. P.M.B.

480—Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent.

a. BRANDE, J. VAN DEN, KIPS, R. H., BEHEYT, C., D'HERDE, J., 1951.—"Chemische bestrijding van het aardappelcystenaaltje *Heterodera rostochiensis* Woll." 16 (2), 247–259. [English, French & German summaries pp. 257–258.]

(480a) Tests of various soil disinfectants when applied in autumn and spring for the control of *Heterodera rostochiensis* on 7 × 7 Latin square plots showed that only D-D mixture

gave promising results. A definite kill of 80% was accompanied by high yields. Ethylene dibromide was extremely phytotoxic even when the potatoes were planted five months after soil treatment. There was no evidence that D-D had a soil amendment effect in a pot experiment with eelworm-free soil. Ethylene dibromide retarded growth of tomatoes significantly. Neither calcium cyanamide nor ammonium sulphate had any direct nematicidal effect, even when applied at the rate of 2,000 kg. per hectare. R.T.L.

481—Medical Journal of Australia.

a. SANDARS, D. F., 1951.—"*Diphyllobothrium latum* (Linné) in Australia." 38th Year, 2 (16), 533–534.
b. PITNEY, P., 1951.—"An unusual case of hydatid disease of the liver." 38th Year, 2 (22), 746–747.
c. BACKHOUSE, T. C. & BEARUP, A. J., 1951.—"Diphyllobothrium in Australia." [Correspondence.] 38th Year, 2 (23), 793–794.

(481a) A case of *Diphyllobothrium latum* seen in the Brisbane General Hospital came from Ireland. Portions of *D. latum* were identified from an immigrant from either Russia or the U.S.A. Specimens were also obtained from three dogs in Brisbane. Sandars draws attention to the increasing chance that this tapeworm may be introduced and establish itself as many immigrants are now reaching Australia from countries in which it is known to be endemic. R.T.L.

(481c) *Diphyllobothrium latum* is still absent from Australia in spite of its probable introduction on many occasions in the past by immigrants from localities where its incidence is known to be very high. This, it is suggested, is because in Australia fresh-water lakes are few and small, and contribute little to the fish supply. Increasing population, a change in food habits and the development of fishing communities may result in the establishment of endemic foci. The Murray Valley, system and in central Tasmania the lake area, may also become endemic areas should they become polluted with infected sewage. R.T.L.

482—Medicamenta. Madrid.

a. LÓPEZ-NEYRA, C. R. & BALCÁZAR RUBIO, M., 1951.—"Primer caso de parasitismo humano por *Dirofilaria conjunctivae* (Addario) en España." 9 (208), 291–295.

(482a) The 21 recorded cases of *Dirofilaria conjunctivae* in man are briefly summarized and the first to be recorded in Spain is now described from a 40-year-old countryman near Elche (Alicante). The worm, which measured 83 mm. in length, was removed from a subcutaneous nodule. R.T.L.

483—Medicina Colonial. Madrid.

a. MATILLA, V., APARICIO GARRIDO, J. & PRIETO LORENZO, A., 1951.—"Estudios sobre anquilostomiasis. III. Nuestras observaciones sobre la epidemiología en la vega del Jarama (Madrid)." 17 (4), 293–347.
b. HAWKING, F., 1951.—"Problemas de filariasis." 17 (5), 413–426.
c. MATILLA, V., APARICIO GARRIDO, J., PRIETO LORENZO, A. & GÓMEZ CAMBA, J., 1951.—"Estudios sobre anquilostomiasis. IV. Los cuadros hematico y medular." 17 (6), 555–566.
d. DÍEZ MELCHOR, F., 1951.—"Esplenomegalia egiptiana." 18 (3), 199–212.
e. APARICIO GARRIDO, J. & PRIETO LORENZO, A., 1951.—"Patología general de la infección helmíntica." 18 (4), 281–292.
f. VÁZQUEZ GUZMÁN, D., 1951.—"Estudio sobre la bilharziosis, con exposición de una localización rara : en la arteria pulmonar y sus ramas." 18 (4), 293–309.

(483a) Matilla *et al.* found that 100 out of 450 (22·2%) persons examined in a part of the Jarama River plain a few miles south-east of Madrid were infected with *Ancylostoma duodenale*. Living conditions are extremely primitive and the warm, moist climate very conducive to the survival of larvae; most of the population, especially the women, are

engaged in horticultural work in irrigated fields. Infection was found in 62 women and in 38 men, with the highest incidence in those between 15 and 25 years of age. Forty-six were infected with less than 500 worms, 28 with 500 – 1,000, 20 with 1,000 – 2,000 and 6 with more than 2,000. Of the 100 cases of ancylostomiasis, 22 were also infected with Enterobius, 11 with Trichuris, 2 with both these species and 6 with Ascaris. As all figures were obtained by a single faeces examination, the true incidence was probably much higher. [For abstracts of previous parts see Helm. Abs., **19**, No. 358b; **20**, No. 245a.] P.M.B.

(483b) In this lecture on the problems of filariasis Hawking deals with microfilarial periodicity, its cause and biological purpose, and with the action of hetrazan on microfilariae and adult filariae and its practical use in the treatment of the various filarial infections of man. R.T.L.

(483c) The number of red blood cells in the peripheral blood of 100 cases of hookworm ranged from 1,700,000 to 4,600,000 per c.mm. and the haemoglobin from 30%–78%. The leucocytes were increased up to 20,000 per c.mm. and later fell to below normal. Eosinophilia was constantly present in the blood and bone marrow and reached a maximum of 49%. There was a notable increase in the erythroblasts in the bone marrow. The anaemia was of hypochromic type and is attributed to lack of iron. [See also No. 483a above.] R.T.L.

(483d) Díez Melchor gives a general account of the distribution, symptomatology and treatment of Egyptian splenomegaly due to infection with *Schistosoma mansoni*. P.M.B.

(483e) The pathological conditions arising from helminth infections are considered generally under (i) those resulting from the activity of the parasite—mechanical, exploitory and toxic—and (ii) those attributable to the reaction of the host's tissues. The various syndromes associated with specific infections of the various organs of the body are then briefly outlined. R.T.L.

(483f) This is a compilation of the published views of various writers on the histopathology of pulmonary schistosomiasis. R.T.L.

484—Medicina Española.

a. GOMAR GUARNER, F., 1951.—" Hidatidosis muscular en el antebrazo." Año XIV, **25** (143), 118–124.

485—Medicina. Revista Mexicana.

a. RUIZ REYES, F., 1951.—" Consideraciones sobre la dietilcarbamazina como profiláctico en la oncocercosis." **31** (627), 163–164.
b. GONGORA TRIAY, B., 1951.—" Apuntes y notas sobre los principales problemas sanitarios del Estado de Yucatán." **31** (639), 431–437.
c. CASIS SACRE, G., 1951.—" Requisitos para la colección de materias fecales para su estudio parasitoscópico." **31** (640), 456–458.
d. RUIZ REYES, F., 1951.—" Tratamiento de la oncocercosis con dietilcarbamazina." **31** (642), 495–504.

(485a) An experiment has been started to test the prophylactic properties of hetrazan against onchocerciasis. Personnel of the campaign against this disease in Oaxaca, Mexico, have been given 100 mg. on two successive days each week. During 1950 none of the staff who took hetrazan had symptoms of onchocerciasis, but as the dosing was irregular its value could not be assessed with any accuracy. The question of the frequency of dosing necessary for prophylaxis is raised. P.M.B.

(485b) Of 6,402 faecal examinations made in the State of Yucatán 2,372 were positive for Ascaris and 2,297 for Trichuris. Ancylostomiasis, which is stated to have been rare in Yucatán until a few years ago, is becoming increasingly serious. P.M.B.

(485d) Ruiz Reyes summarizes literature on the early, experimental work with hetrazan for the treatment of onchocerciasis, and quotes from his own experience of 42,522 cases in Mexico, with particular reference to the allergic reactions and blood changes produced. He emphasizes that successful treatment depends on the removal of all nodules before giving hetrazan as the drug does not kill the adult worms, and on the absence of reinfection. P.M.B.

486—Medizinische Klinik.

a. LOMMEL, F., 1951.—"Zur Askaridenseuche." **46** (24), 685–686.

(486a) Lommel reports that his colleague Pfeffer had examined 300 patients for Ascaris ova at the Jena University Clinic and found 22·3% positive: these patients came from every part of Thuringia. He also found 50·9% of 320 stools examined in a Thuringian village to be positive for Ascaris ova. These figures show a marked increase over those obtained in 1919, 1921 and 1930. Of 24 soil samples from village gardens 6 were positive, and ova were found on 7 out of 26 carrots and on more than half the lettuces from the same gardens. Soil from a field used as a playground by children was strongly positive for Ascaris ova in 14 out of 15 samples; nightsoil had been used on this field as manure and all the owner's family were infected with Ascaris. Treatment of infected persons is necessary but the most effective control measures are those directed at egg destruction. Only treated sewage should be used on vegetable gardens and adequate washing or cooking of vegetables is essential. The public should be told of the dangers of worm infections. A.E.F.

487—Medizinische Monatsschrift. Stuttgart.

a. MOHR, W., BERKA, W., KNÜTTGEN, H. & OHR, A., 1951.—"Das klinische Bild der Distomatosis hepatica (*Fasciola hepatica*) und ihre Therapie." **5** (10), 676–681.

(487a) This article deals with the mode of infection, clinical details and treatment of five human cases of fascioliasis hepatica, one of which has already been described [for abstract see Helm. Abs., **18**, No. 846b]. These cases are thought to be the first in northern Germany and bring the total recorded for the whole country to twelve. P.M.B.

488—Medizinische Welt.

a. SEITZ, K., 1951.—"Über die Verbreitung der Askaridiasis bei Schulkindern im Rhein-, Main-, Neckargebiet." **20** (33/34), 1028–1030.

(488a) During the period October 1948 to July 1950, 128,218 schoolchildren in the valleys of the Rhine, the Main and the Neckar were examined for Ascaris; 42,802 (i.e. 32·4%) were positive. Of the infected children 19,327 (45·2%) were boys and 23,485 (54·8%) were girls. The figures arranged according to intensity of infection were: light infections, 32,891; moderate, 7,303; heavy, 2,514; very heavy, 94. Seitz discusses the causes of this heavy post-war infection rate and recommends the usual control measures. A.E.F.

489—Medycyna Weterynaryjna.

a. KOCYŁOWSKI, B., 1951.—"Ryby słodkowodne i morskie jako źródło zoonoz." **7** (12), 799–800.
b. TRAWIŃSKA, J., 1951.—"Epidemiologia i diagnostyka włośnicy." **7** (12), 823–828.

(489a) Kocylowski in an article on fresh-water and marine fishes as sources of zoonoses draws attention to the role played by fresh-water fishes in the life-history of *Diphyllobothrium latum* and *Opisthorchis felineus*. He also mentions the danger of *Ligula intestinalis* and *Schistocephalus solidus* to waterfowl. C.R.

(489b) Trawińska summarizes the history of trichinosis and discusses the methods already known for its diagnosis. C.R.

490—Memoirs. Cornell University Agricultural Experiment Station.

a. LEAR, B., 1951.—"Use of methyl bromide and other volatile chemicals for soil fumigation." No. 303, 48 pp.

(490a) Lear summarizes the results of a large number of experiments on soil nematicides, especially D-D mixture, ethylene dibromide, chloropicrin and methyl bromide. Experiments included screening tests of nematicides in high aqueous dilution using larvae of soil eelworms cultured on agar; pot and plot tests using the counts of root-knot galls on indicator plants to assess efficacy; the application of ethylene dibromide in gelatine capsules (for this purpose the soil must be wet enough for a mass to retain its shape when squeezed by hand); the influence of soil type (ethylene dibromide was equally effective in sand, clay and organic soils but methyl bromide and D-D less so in the latter); the effects of soil temperature and moisture, tilth and surface sealing, depth and spacing of injections; etc. [This memoir is itself a condensed summary. In the space of an abstract it is impossible to give more than an indication of the subjects covered.] B.G.P.

491—Memorias do Instituto Oswaldo Cruz.

a. FREITAS, J. F. TEIXEIRA DE, 1951.—"Revisão da familia Eucotylidae Skrjabin, 1924 (Trematoda)." 49, 33–123.

(491a) In this monograph of the Eucotylidae, Freitas divides the family into Eucotylinae n.subf. containing the genus *Eucotyle*, and Tanaisiinae n.subf. containing the genus *Tanaisia* of which *Tamerlania* is considered to be a synonym. Of the 24 species of *Tanaisia* tabulated, 13 are described as new, viz., *T. incerta* n.sp. in *Myospiza h. humeralis*; *T. inopina* n.sp. in *Passer domesticus*; *T. similis* n.sp. in *Cyanocorax chrysops*; *T. valida* n.sp. in *Himantopus h. melanurus*; *T. parva* n.sp. in *Uroleuca cristatella*; *T. precaria* n.sp. in *Speotyto cunicularia grallaria*; *T. exigua* n.sp. in *Troglodytes m. musculus*; *T. dubia* n.sp. in *Tringa melanoleuca*; *T. oviaspera* n.sp. in *Rhamphocelus carbo connectens, R. c. carbo, Icterus cayanensis pyrrhopterus* and *Thraupis s. sayaca*; *T. minax* n.sp. in *Cyanocorax cyanomelas, C. chrysops* and *Passer domesticus*; *T. magnicolica* n.sp. in *Guira guira* and *Paroaria capitata*; *T. confusa* n.sp. in *Ramphastos toco*; *T. robusta* n.sp. in *Crypturellus tataupa*. The following are new combinations, *Tanaisia zarudnyi, T. panuri, T. plegadis, T. gratiosa, T. meruli, T. bragai* and *T. melospizae*. The work is illustrated by 219 figures on 74 plates and there is a bibliography containing 69 references. R.T.L.

492—Memorias de la Sociedad de Ciencias Naturales La Salle.

a. DÍAZ UNGRÍA, C., 1951.—"Estrongilosis broncopulmonar del cerdo en Venezuela." 11 (29), 183–194.

(492a) *Metastrongylus pudendotectus* is recorded for the first time in Venezuela, where it was present in 60% of the pigs autopsied by Díaz Ungría. *Metastrongylus apri* occurred in 80%. Two types of infection are distinguished, (i) that which occurs in adult pigs causing no clinical symptoms in spite of the penetration of the intestine by hundreds of larvae and (ii) a more serious type in young pigs which causes coughing and sometimes pneumonia and occasionally death from asphyxia and pulmonary oedema. P.M.B.

493—Mikrobiologiya. Moscow.

a. SOPRUNOV, F. F. & GALIULINA, Z. A., 1951.—[Predatory hyphomycetes from Turkmenistan soil.] 20 (6), 489–499. [In Russian.]

(493a) Soprunov & Galiulina describe various nematode-trapping fungi, including several new species. One of the new species is peculiar in that it secretes a toxin which attacks and paralyses nematodes in its immediate vicinity. There are two plates showing *Ancylostoma duodenale* captured by fungi. J.B.G.

494—Military Surgeon.

a. TAYLOR, Jr., W. W., 1951.—" Intestinal parasitic infection in military personnel of the U.S. Marine Corps." 108 (6), 495–498.
b. SCHAPIRO, M. M., 1951.—" Trichinosis in Honduras—a preliminary report." 109 (3), 200–204.
c. KEHOE, E. L. & LANG, A., 1951.—" Observations on schistosomiasis in Puerto Rican troops." 109 (5), 609–616.

(494a) Of 991 U.S. Marines 3·5% had hookworm ova in their faeces. 4% of 474 with overseas experience had hookworm whereas the infection occurred in 2·5% of those with no overseas experience. Of the 248 marines from southern coastal States 10·9% were positive whereas only 0·7% of 743 from other States were infected. These statistics suggest that the infections were contracted within the U.S.A. R.T.L.

(494b) By means of a modified Bachman intradermal test using an antigen diluted to 1 : 10,000, trichinosis was found to occur in a subclinical, latent form in 37 out of 500 unselected hospital patients at Tegucigalpa, Honduras. The infection was hitherto unsuspected in man in Honduras, where approximately 1% of pigs slaughtered are discarded as a result of macroscopic inspection of tissues for trichinae; no laboratory facilities are available for microscopic examination. P.M.B.

(494c) Of 129 Puerto Rican soldiers infected with *Schistosoma mansoni*, 46·6% were asymptomatic and 53·4% were symptomatic. The chief symptoms were abdominal pain in 71% and diarrhoea in 52%. Other parasites present were *Necator americanus*, *Trichuris trichiura*, *Strongyloides stercoralis* and *Ascaris lumbricoides*. Fouadin is recommended for mass treatment of schistosomiasis. R.T.L.

495—Minerva Medica.

a. FOGLIATI, A. E. & BRUZZONE, P. L., 1951.—" Il trattamento chirurgico delle cisti da echinococco del polmone." Anno 42, 1 (28), 963–968.

496—Monatshefte für Praktische Tierheilkunde.

a. ENIGK, K., 1951.—" Die Pathogenese der thrombotisch-embolischen Kolik des Pferdes." New series, 3 (2), 65–74.
b. ENIGK, K., 1951.—" Zur Therapie des *Strongylus vulgaris*-Befalles beim Pferde während der Präpatentperiode." New series, 3 (2), 75–83.

(496a) Enigk describes in detail the anatomical changes in the blood vessels of horses caused by migrating larvae of *Strongylus vulgaris* and outlines the pathogenesis of colic caused by thrombi and emboli. The time taken before reabsorption of thrombi occurs varies with their size: they heal after seven weeks at the earliest, leaving a thickening of the intima. In some cases thrombi are found in the smaller arteries of the wall of the large intestine: aneurysms do not occur in these arteries. Dilation of the blood vessels occurs mainly in arteries branching from the aorta. Aneurysm formation is mainly determined by the blood pressure and blood flow at branchings. If thrombi heal rapidly (this depends on the fibrinolytic substances present) aneurysms do not develop to any size. Contrary to earlier views, Enigk believes that thrombosis of the small arteries of the intestinal wall is also a cause of colic. A.E.F.

(496b) Enigk reviews earlier literature on the destruction of *Strongylus vulgaris* fourth and fifth-stage larvae in the horse by anthelmintics and describes his own experiments. He reports that Cuprosolvin and hetrazan have no effect on fourth-stage *S. vulgaris* larvae. Since anthelmintic treatment was so unpromising Enigk tried out two anticoagulants: (i) a heparin preparation "Thrombo-Vebren" and (ii) a dicumarol preparation "Cumid". "Thrombo-Vebren" showed only a transitory effect but "Cumid" caused more rapid healing of thrombi and reduced the formation of aneurysms. Enigk recommends further study of anticoagulant treatment against *S. vulgaris* larvae. A.E.F.

497—Monatshefte für Veterinärmedizin.

a. EICHLER, W., 1951.—"Die Entwicklung der Fragestellung in der Parasitologie." 6 (24), 478–482.

498—Münchener Medizinische Wochenschrift.

a. HANNAK, S., 1951.—"Therapieergebnisse bei Schulkindern mit dem neuen enzymatischen Wurmmittel 'Vermizym'." 93 (25), 1267–1268.

(498a) In the Pforzheim district of Germany 123 out of 255 schoolchildren (48%) were infected with Ascaris and/or Trichuris. Vermizym [a drug prepared from *Carica papaya*] cured over 70% of cases with a moderate, single infection but was less successful in double infections. Of 28 cases of enterobiasis, 19 showed two or three negative cellophane strip examinations after a six-day course of Vermizym. No allergic reactions were observed. P.M.B.

499—Municipal Engineering. London.

a. PEEL, C., 1951.—"Meat inspection in a West African abattoir." 128 (3234), 340–341.

(499a) During meat inspection at Freetown, Sierra Leone, Peel has regularly observed *Fasciola hepatica* in bovine livers, but sheep and goats do not appear to be affected. In a recent survey the incidence of cysticerciasis was 48% to 49%. As older cattle appear to acquire an immunity it may be possible eventually to control it by encouraging the butchers to slaughter only animals over four years old. R.T.L.

500—N.A.A.S. Quarterly Review. London.

a. BROWN, E. B., 1951.—"Plant parasitic eelworms." No. 13, pp. 12–18.

(500a) As eelworm infections have become of major importance to British agriculture and horticulture during the last 20 or 30 years, Brown briefly summarizes the various species and their host plants which occur in Britain and particularly in the eastern counties. R.T.L.

501—Nature. London.

a. ANON., 1951.—"Future of parasitology." 168 (4274), 527–529.
b. CROFTON, H. D. & THOMAS, R. J., 1951.—"A new species of *Nematodirus* in sheep." [Correspondence.] 168 (4274), 559.
c. MANSON-BAHR, P., 1951.—"Filariasis in the Pacific." 168 (4279), 776–777.
d. DOUGHERTY, E. C., 1951.—"Factor *Rb* activity in human plasma." [Correspondence.] 168 (4281), 880.

(501b) Of two million worms collected from five lambs during an outbreak of parasitic disease in the north of England in 1951, over 90% belonged to *Nematodirus*. They were either *N. filicollis* or *N. battus* n.sp. The new species is distinguished from others of the genus by the finely pointed tail in the female and the divergent character of the medio-lateral and postero-lateral rays of the bursa. R.T.L.

(501c) This is an annotation of a typescript abstract of the proceedings of a congress of experts on filariasis and elephantiasis held in Tahiti from August 21st to September 1st, 1951. The report of the conference will be issued as a public document. R.T.L.

(501d) Human plasma when properly supplemented is now reported to be a good source of factor *Rb*, a heat-labile protein-like requirement of *Rhabditis briggsae*. To irradiated, lyophilized material, pooled from many donors, 0·4% sodium citrate was added as an anticoagulant. The original volume was restored by the addition of water and the liquid was sterilized by Seitz filtration. Dialysed and undialysed samples were tested as sources of factor *Rb* by adding 1 ml. of the plasma preparations to an equal amount of clear

supernatant fluid of autoclaved horse liver prepared by a prescribed technique; both uniformly produced vigorous cultures when inoculated with a few dozen tiny larvae. In a supplementary note, it is stated that factor *Rb* activity is apparently confined to those plasma fractions rich in β-globulins (fractions III and IV). R.T.L.

502—Nederlandsch Tijdschrift voor Geneeskunde.

a. BERG, J. A. G. TEN, 1951.—" Schistosomiasis. Lever- en rectumslijmvliesbiopsie." 95 (13), 968–975. [English summary p. 975.]
b. HALBERTSMA, K. T. A., 1951.—" Cysticercus subretinalis." 95 (14), 1110–1113.
c. PASMA, A., 1951.—" Echinococcus renis." 95 (16), 1229–1233. [English, French & German summaries p. 1233.]
d. PASMA, A., 1951.—" Echinococcus lienis." 95 (21), 1560–1564. [English, French & German summaries p. 1564.]
e. REISEL, J. H. & GROEN, J., 1951.—" Tropische eosinophilie en filariasis." 95 (24), 1736–1744. [English summary p. 1744.]
f. HARTOGH, L. F. DE, 1951.—" Tropische eosinophilie en filariasis." 95 (26), 1927.

(502a) Ten Berg summarizes in Dutch the descriptions of two cases of schistosomiasis mansoni described by him in 1950 in *Documenta Neerl. Indones. Morbis trop.*, 2 (3), 260–265. R.T.L.

(502b) The differential diagnosis, treatment, prognosis and European incidence of subretinal tapeworm cysts in man are briefly summarized. ["*Cysticercus subretinalis*" is here used as a clinical term and not in a nomenclatural sense.] R.T.L.

(502e) In a case of tropical eosinophilia in a Dutch woman who had been interned in Sumatra, *Microfilaria malayi* were present in fluid from a varicose inguinal lymph cyst. The condition was effectively treated with anthiomaline. R.T.L.

(502f) De Hartogh in a reply to a contribution by Reisel & Groen [see preceding abstract] reports briefly on eleven cases of eosinophilia. The patients were infected with numerous "Anguillulae stercoralis". Their lymph glands were not enlarged and the repeated search for "filaria" proved negative. He supports De Langen's contention that the "anguillula" may be the cause of the syndrome tropical eosinophilia and that this is not pathognomic for filariasis incipiens. P.L.leR.

503—New York State Journal of Medicine.

a. JACOBSON, B. E., 1951.—" Trichinosis with unusual symptomatology." 51 (12), 1527–1529.

(503a) Three cases of trichinosis are reported in which periorbital or facial oedema and muscular pains were absent and the eosinophilia appeared late. There was marked albuminuria in two cases, and in one marked oedema of the lower extremities and persistent abdominal pain with rigidity in the lower quadrant. One case showed bilateral pulmonary consolidation with effusion. R.T.L.

504—New Zealand Journal of Agriculture.

a. LAING, A. D. M. G., 1951.—" Hydatid disease can be eradicated." 83 (4), 251–252.

505—Nordisk Veterinaermedicin.

a. GÖTZSCHE, N. O., 1951.—" Bidrag til *Taenia saginata*'s epidemiologi." 3 (11), 957–983. [English & German summaries pp. 981–983.]

(505a) In the Aarhus and Skanderborg counties of Denmark, Götzsche found that *Cysticercus bovis* infection in cattle appeared to have no relation to the incidence of *Taenia saginata* carriers in the locality. The distribution of lightly infected cattle is fairly uniform over a wide area. It was demonstrated experimentally that gulls and possibly other birds could pick up onchospheres at sewer outlets or uncovered sewage disposal plants, and

subsequently drop them where they could infect grazing cattle. Most of the hospital patients with *T. saginata* were urban residents; 90% stated that they habitually ate raw beef or veal. The proportion of female to male cases was 8 to 1. Various prophylactic measures are suggested, including the abrogation of the meat inspection rule whereby the meat of animals over two years of age is passed unconditionally if up to ten fully degenerated cysticerci are found. P.M.B.

506—North American Veterinarian.

a. MASON, M. M., 1951.—" Sensitivity to caricide. Case report." 32 (11), 767–768.

(506a) An English setter with a moderate hookworm infection appeared so blanched after receiving one tablet of caricide with food that the mucous membranes resembled those of an exsanguinated animal. There was rapid shallow breathing and a very weak pulse. Marked improvement followed an intravenous injection of 1 c.c. of a 2% solution of pyribenzamine. Calcium gluconate was administered intraperitoneally to prevent heart block. A second case was similarly treated. R.T.L.

507—Nuovi Annali d'Igiene e Microbiologia.

a. BIOCCA, E. & BONA, M. DI, 1951.—" Ricerca delle larve di *Trichinella spiralis* nei diaframmi di individui morti a Roma nel 1950." 2 (4), 321–323. [English & French summaries p. 322.]

(507a) No evidence of infection with *Trichinella spiralis* was obtained from examination of the diaphragms of 100 individuals of different age, sex and occupation autopsied at hospitals in Rome during 1950. R.T.L.

508—Österreichische Zoologische Zeitschrift.

a. WIESER, W., 1951.—" Untersuchungen über die algenbewohnende Mikrofauna mariner Hartböden. I. Zur Oekologie und Systematik der Nematodenfauna von Plymouth." 3 (3/4), 425–480.

(508a) From July 14 to August 17, 1950 Wieser, whilst working at the Plymouth Laboratory of the Marine Biological Association, collected samples of various kinds of marine algae and obtained the nematodes from them. These were enumerated and identified, and tables are presented showing the abundance of the nematodes in relation to the various algae and the tide levels. In the systematic section of the paper the following new genera and species are erected: *Cavilaimus macramphis* n.g., n.sp., *Oncholaimellus diodon* n.sp., *Xenodesmodora porifera* n.g., n.sp., *Crassolaimus bipapillatus* n.sp., *Prochromadorella macro-ocellata* n.sp., *Heterochromadora granulo-pigmentatus* n.g., n.sp., *H. cervix* n.sp., *Prochromadora longitubus* n.sp., *Araeolaimoides paucisetosus* n.sp., *Dermatolaimus membranatus* n.sp., *Monhystera refringens* var. *britannica* n.var. T.G.

509—Ohio Journal of Science.

a. BANKS, W. M., 1951.—" A new Megalura cercaria from Ohio." 51 (6), 309–312.

(509a) *Cercaria darbiensis* n.sp. develops in rediae in *Goniobasis livescens*. It has no spines on the body and has 11 flame cells on each side. It seems to be closely allied to *C. megalura*, but differs in that it can swim vigorously and that the main excretory canals arise from a common duct. R.T.L.

510—Pacific Science. Honolulu.

a. KARTMAN, L., 1951.—" Notes on *Tetrameres* sp. (Nematoda, Spiruroidea) parasitic in the English sparrow in Hawaii." 5 (3), 252–255.

(510a) Of 207 *Passer domesticus* shot at the University of Hawaii Agricultural Experiment Station, 67 had one or more proventricular glands invaded by *Tetrameres* sp. which, according to Dr. E. E. Wehr, does not fit the description of any known species.

Adult females were macerated in saline and bits containing embryonated eggs were fed to the grasshoppers *Oxya chinensis* and *Conocephalus saltator*. Third-stage larvae were obtained after a minimum of 21 days. Young chickens could not be infected experimentally.

R.T.L.

511—Pakistan Journal of Health.

a. QUTUB-UD-DIN, M., 1951.—"Epidemiology of filariasis in Medak District Hyderabad (Deccan)." 1 (3), 27–33.

(511a) This paper was presented to the 34th Indian Science Congress meeting at Delhi in 1947 and an abstract appeared in the Proceedings of the Indian Science Congress [for abstract see Helm. Abs., 17, No. 649p]. It deals with the incidence of bancroftian filariasis in 22 villages in the district of Medak, north of Hyderabad. Elephantiasis was noted in 527 out of 49,980 inhabitants. The affection occurred in the leg in 92·7%, in the scrotum in 5·6% and in the hand in 1·3% of these cases. The overall rate was 1·05% and reached 5% in the villages Dobbak and Nizampet. Both sexes were equally affected. The youngest case was a child 10 months old. The filarial endemicity rate ranged from zero to 21·4%. The vector was *Culex fatigans*. R.T.L.

512—Pampa Argentina.

*a. SILLA, R. R., 1951.—"Anguilulosis de la raiz (*Heterodera marioni*—Cornu)." 24 (279), 22.
*b. CANGAS-ONIS, 1951.—"La triquinosis." 24 (282), 2.
*c. BASANTA, E. A., 1951.—"La distomatosis o mal de higado." 24 (282), 23.

513—Parasitology.

a. SUBHAPRADHA, C. K., 1951.—"*Vallisiopsis contorta* n.g. and n.sp. and *Gastrocotyle indica* n.sp., monogenetic trematodes from marine fishes of the Madras coast." 41 (3/4), 162–165.
b. GERICHTER, C. B., 1951.—"Studies on the lung nematodes of sheep and goats in the Levant." 41 (3/4), 166–183.
c. GERICHTER, C. B., 1951.—"Two new lung nematodes from Near-East mammals." 41 (3/4), 184–188.
d. GORDON, A. R., 1951.—"On the male of *Ascarophis morrhuae* van Beneden." 41 (3/4), 261–263.
e. FILES, V. S., 1951.—"A study of the vector-parasite relationships in *Schistosoma mansoni*." 41 (3/4), 264–269.
f. HOPKINS, C. A. & SMYTH, J. D., 1951.—"Notes on the morphology and life history of *Schistocephalus solidus* (Cestoda: Diphyllobothriidae)." 41 (3/4), 283–291.
g. JONES, T. W. TYSSUL, 1951.—"A new monostome cercaria from bithynoid snails in Singapore." 41 (3/4), 312–315.

(513a) *Vallisiopsis contorta* n.g., n.sp. is described and figured from *Lactarius lactarius*. The new genus is placed in the subfamily Vallisiinae which is emended to include genera possessing accessory sclerites on the clamps. From *Vallisia* it differs in having accessory sclerites, in its strikingly asymmetrical body and haptor, and in the preovarial testes overlapping the anterior part of the ovary. *Gastrocotyle indica* n.sp. occurs on the gills of *Caranx kalla*. It differs from *G. trachuri* in having two pairs of anchors, from *G. japonica* in the looped shape of the ovary and from both these species in possessing an additional sclerite in the dorsal wall of the capsule. R.T.L.

(513b) In sheep and goats sent from local farms and from the Lebanon, Syria, Transjordan and Turkey, the lungworms found were *Dictyocaulus filaria, Cystocaulus ocreatus, Muellerius capillaris, Protostrongylus rufescens* and, once only, *Neostrongylus linearis*. New detailed descriptions, illustrations and experimentally produced life-histories of these species are given. *D. filaria* is one of the commonest species in the Levant. Its larval development up to the third stage may occur without hatching and was observed even in the uterus of an intact female kept in saline, but here the larvae never reached the infective stage. *C. ocreatus* usually occurred in the same lung as (i) sexually developed adults in the parenchyma but never in the bronchi, and (ii) single males or females usually in dark

nodules below the pleural surface. Larval development was observed in *Chondrula septemdentata, Helicella barbesiana, H. vestalis joppensis, Helix cavata, Levantina caesareana, L. hierosolima, Monacha syriaca, Theba pisana, Retinella nittelina, Agriolimax* sp., and *Limax flavus*, but whereas in the species *Helicella, Monacha* and *Limax* full development at optimum temperature (20°C.–30°C.) took 18–19 days, in the *Levantina* spp. several months were required. The development of *Muellerius capillaris* is similar to that of *Cystocaulus ocreatus* and occurs in the same molluscs but requires 35 days under optimum conditions, but at lower temperatures is markedly retarded and at 4°C.–8°C. may last for 4½–5 months. A suckling kid fed with several infected *Monacha syriaca* showed first-stage larvae in the faeces after six weeks, and two weeks later typical foci containing eggs, larvae, and adult males and females were found in the lungs. Of the molluscan vectors of *C. ocreatus* only *H. barbesiana, H. vestalis joppensis* and *M. syriaca* could be infected with *P. rufescens*. The infection was experimentally transferred to a suckling kid. Larval development took 46–49 days at the optimum temperature (20°C.–30°C.) to complete and became retarded by lower temperatures. Of 500 specimens of *H. barbesiana* collected near Jerusalem in September and October 17·2% were found to be infected with lungworm larvae; of these, 64% were *C. ocreatus*, 24% were *Muellerius capillaris* and 22% were *P. rufescens*. 60%–70% of the snails contained only one larva. Gerichter does not accept Dougherty & Goble's view that *M. capillaris* is a synonym of *M. minutissimus* which he considers to be a nomen nudum and he accepts the name *P. rufescens* instead of *P. kochi* on the ground that Leuckart in his description of its first-stage larva mentioned the straight tail so characteristic of *Protostrongylus* larvae. The paper is illustrated by 49 figures. R.T.L.

(513c) *Crenosoma lophocara* n.sp. from the bronchi of *Erinaceus roumanicus sacer* in Northern Syria differs from *C. striatum* in that the dorsal branch of the spicule is longer than half of the spicule. The spicules and gubernaculum are larger. The diagnosis of the genus *Crenosoma* is revised. *Stenuroides herpestis* n.g., n.sp. from the lungs of *Herpestes ichneumon* in Israel differs from *Stenurus* in that there is no oral capsule and the spicules are separate. This new species is the only known example of the Pseudaliinae which occurs in a terrestial mammal. R.T.L.

(513d) *Ascarophis morrhuae* was described by van Beneden but the male remained unknown. It is now described and figured from *Gadus aeglefinus*. R.T.L.

(513e) Files reports in great detail on her investigation of the vector-parasite relationships in *Schistosoma mansoni*. *Australorbis glabratus* from Puerto Rico, the Dominican Republic, Venezuela, Surinam and from Recife and Salvador in Brazil, *Biomphalaria pfeifferi* from Liberia and *B. boissyi* from Egypt were used. The strains of *S. mansoni* had been obtained from Puerto Rico, Venezuela, Surinam, Brazil and Egypt. In addition to these five strains she used seven strains which had been established by the interbreeding of the males of one strain with the females of other strains. Failures to establish these various strains in the molluscan vectors from different countries were encountered and it is suggested that these failures may be attributed to "(1) interspecific and intraspecific differences between vectors in respect to the physiological factors that are responsible for the development of the parasite in the snail, and (2) physiological differences between strains of the parasite". She believes that there are interspecific physiological differences between *A. glabratus* and *B. boissyi* and intraspecific differences between *A. glabratus* from Brazil and *A. glabratus* from the other countries mentioned. Furthermore she accepts that the strain *S. mansoni* from Egypt differs physiologically from those of Puerto Rico, Venezuela and Surinam and that from Brazil differs physiologically from the other American strains used in the experiments. It is suggested that the African origin of the slaves imported into the different American states may account for the physiological differences observed in the strains of *S. mansoni* from Brazil and other South American localities. P.L.leR.

(513f) Hopkins & Smyth deal with the morphology and life-history of *Schistocephalus solidus*. The absence of bothria prevents attachment of the worm to the gut wall of the definitive hosts which are fish-eating birds. Maximum length of adult worms seldom exceeds 125 mm. and Lühe's measurement of 300 mm. is attributed to confusion of *Schistocephalus* with *Ligula*. In the British Isles the plerocercoids have only been found in *Gasterosteus aculeatus*. The occurrence of plerocercoids in other hosts besides *Gasterosteus* and *Pyogosteus* is considered accidental. No castration of fish by plerocercoids has been observed. The larvae occur free in the body cavity of the host and encystment such as occurs with the larval stages of *Diphyllobothrium* spp. has not been observed. In heavy infections the weight of the plerocercoids may amount to 92% of the actual weight of the host. The high glycogen content of the plerocercoids enables them to survive in non-nutrient media for long periods. At room temperatures they may live *in vitro* for periods up to 9 months and at 40°C. in suitably buffered non-nutrient media, the food reserves allow complete maturation. The adult worm seldom stays in the gut of the definitive host longer than 3–4 days. This contribution is well illustrated. P.L.leR.

(513g) In 20% of 74 bithynoid snails (of unidentified species) collected on the island of Singapore, Tyssul Jones found rediae and cercariae of an unknown monostome. The cercaria is named *C. setaecauda* n.sp. from the presence, unique in monostome cercariae, of setae on the tail. R.T.L.

514—Pastoral Review. Melbourne.

a. FETHERS, G., 1951.—" The fluke invasion." 61 (9), 996–997.
b. FETHERS, G., 1951.—" Fluke control and black disease." 61 (10), 1114–1115.

(514a) During 1951 liver-fluke infections of sheep have been demonstrated in Australia on properties as far apart as Mortlake in Victoria and Warwick in the Darling Downs, Queensland. The modes of spread and of treatment are briefly summarized. When sheep are badly infected or where losses from acute fluke disease are occurring it is justifiable to increase the dose of carbon tetrachloride to 4 c.c. in 10 c.c. of paraffin oil. It is stated that the higher dose will destroy many of the immature flukes still wandering within the tissues. R.T.L.

(514b) "Black disease" is caused by young liver-flukes when they pierce the capsule of the liver. The disease is not recognizable before death as the affected sheep die so suddenly. Animals in good condition are most frequently affected. At post-mortem examination the liver shows irregular, pale grey or white necrotic patches varying from the size of an Australian threepenny piece to that of a two-shilling piece. Heavy losses occur commonly about January and February. Where the disease has been diagnosed the entire flock should be promptly vaccinated, but full protection will not be attained for about 14 days. The importance of destroying the vector molluscs by copper sulphate is emphasized. R.T.L.

515—Pediatrické Listy.

a. ROZEHNAL, V., 1951.—" Studie kozního testu u ascariasis." 6 (3), 150–151. [English & Russian summaries p. 151.]

(515a) An intradermal injection of 0·1 c.c. of Ascaridin gave a positive reaction in 70% of children with ascaris ova in their faeces. The test is safe and easily applied. The antigen was prepared by Jírovec from pig ascaris; after cutting up in sterile saline and drying in a hot air oven the tissue was extracted for 48 hours in physiological saline with 0·5% phenol, filtered through a bacterial filter into sterile bottles and kept in the cold. Control injections were prepared from saline with 0·5% phenol. R.T.L.

516—Pediatriya. Moscow.

a. KOSOVA, E. P., 1951.—[Sankafen in the treatment of Ascaris and Enterobius in tuberculous children.] Year 1951, No. 1, p. 47. [In Russian.]
b. ANDROSOV, M. D., 1951.—[Ascaris in the ear and nose of children.] Year 1951, No. 1, p. 48. [In Russian.]

(516a) Kosova reports results obtained by treating with Sankafen children infected with Ascaris and Enterobius in a sanatorium for tuberculosis. Children under 3 years old received one tablet a day for two days; above 3 years two tablets a day for two days. Sankafen was given in the morning to fasting children in two doses with an interval of half an hour. An enema was administered on the evening before starting treatment. In many children one course of treatment was sufficient, but better results were obtained after two courses. After treatment the health of the children improved. C.R.

(516b) Androsov reports finding an Ascaris in the left lower nasal duct of a child during rhinoscopy. In the author's opinion the worm reached there from the intestine during vomiting. Ascaris were also found in the ears of two children with symptoms of otitis and damage to the ear drum. He thinks that the worms settled there during larval migration. C.R.

517—Peking Natural History Bulletin.

a. FAUST, E. C., 1951.—" The beginning of organized parasitology in China." 19 (2/3), 85–88. [Chinese summary p. 85.]
b. HOEPPLI, R., 1951.—" The development of parasitology in China from 1930 to 1950." 19 (2/3), 90–146. [Chinese summary p. 89.]
c. FENG, L. C., 1951.—" The future of parasitology in China." 19 (2/3), 147–154. [Chinese summary p. 147.]
d. CHEN, H. T., 1951.—" *Prosthogonimus* from China, with remarks on the validity of the various species of the genus (Trematoda : Plagiorchiidae)." 19 (2/3), 183–192. [Chinese summary p. 183.]
e. YEH, J. & WU, K., 1951.—" Progenesis of *Microphallus minus* Ouchi (Trematoda : Microphallidae) in freshwater shrimps." 19 (2/3), 194–208. [Chinese summary p. 193.]
f. TANG, C. C., 1951.—" Contribution to the knowledge of the helminth fauna of Fukien. 2. Notes on *Ornithobilharzia hoepplii* n.sp. from the Swinhoe's snipe and *Cortrema corti* n.gen., n.sp. from the Chinese tree sparrow." 19 (2/3), 209–216. [Chinese summary p. 209.]
g. TANG, C. C., 1951.—" Contribution to the knowledge of the helminth fauna of Fukien. 3. Notes on *Genarchopsis chinensis* n.sp., its life history and morphology." 19 (2/3), 217–223. [Chinese summary p. 217.]
h. TANG, C. C., CHOW, C. C., WANG, P. C., SIEH, P. K. & CHOW, S. L., 1951.—" Epidemiology of schistosomiasis japonica in Futsing, Fukien Province." 19 (2/3), 226–247. [Chinese summary pp. 225–226.]
i. KAO, C. M. & CHOW, Y. L., 1951.—" The incidence of oxyuriasis of primary school children in Tientsin, China." 19 (2/3), 267–272. [Chinese summary p. 267.]
j. CHANG, H. F., 1951.—" Areca nut in the treatment of *Diphyllobothrium latum*." 19 (2/3), 273–275. [Chinese summary p. 273.]
k. WU, C.-L., 1951.—" Study on the life-history of *Euparyphium murinum* Tubangui, 1931 (Trematoda : Echinostomatidae)." 19 (2/3), 285–295. [Chinese summary p. 285.]
l. CH'IN, Y. T., 1951.—" Trichinella infection in dogs, cats, rats, mice and pigs in Mukden, China." 19 (2/3), 297–300. [Chinese summary p. 297.]
m. HOEPPLI, R. & LI, F., 1951.—" The biological and pathogenic significance of helminth eggs embedded in tissue." 19 (2/3), 336–361. [Chinese summary pp. 335–336.]
n. LI, F., 1951.—" On two species of free-living nematodes from latrines in Peking which may contaminate improperly collected stool samples." 19 (2/3), 363–373. [Chinese summary p. 363.]
o. HOEPPLI, R. & CH'IANG, I.-H., 1951.—" The doctrine of spontaneous generation of parasites in old-style Chinese and western medicine. A comparative study." 19 (2/3), 375–415. [Chinese summary p. 375.]

(517c) Great efforts are being made to improve the health conditions of the inhabitants of the vast rural areas of China. Domesticated animals also suffer from numerous parasitic and parasite-borne diseases of which there is still insufficient knowledge. Animal husbandry, parasitology and veterinary medicine deserve immediate attention from a national economy standpoint. R.T.L.

(517d) The 27 known species of *Prosthogonimus* are reduced to six. The characters of the four Chinese species, *P. anatinus*, *P. cuneatus*, *P. pellucidus* and *P. rudolphii* are tabulated. A key is provided for the six valid species which include *P. ovatus* and *P. dogiele*. *P. furcifer* and *P. karausiaki* are *species inquirendae*. R.T.L.

(517e) Encysted metacercariae of *Microphallus minus*, *Coitocaecum* sp. (?) and *Phyllodistomum lesteri* were found in fresh-water shrimps around Shanghai. *M. minus* and *P. lesteri* showed progenesis. Mice were successfully infected with *M. minus* but the worms disappeared within 16 days and at no time were eggs passed in the faeces. In view of the widespread occurrence of these metacercariae and the local custom of eating the shrimps uncooked, the real significance of Ouchi's auto-infection experiments is discussed. R.T.L.

(517f) Nine pairs of *Ornithobilharzia hoepplii* n.sp. were recovered from the portal vein and liver of two *Capella megala* near Foochow. The new species differs from *O. odhneri* in a number of characters, including the number of testes (25 or 26) and the almost equal length of male and female (3·7 mm. to 7·4 mm.). The differential characters of the two species are tabulated. The existence of this species with only 25 or 26 testes and of *O. pricei* with 28 makes it necessary to emend Price's description of the genus (1929) which states that 60 or more testes are present. *Cortrema corti* n.g., n.sp. is described from the bursa fabricii of *Passer montanus saturatus*, 33·8% of those from the Foochow district being infected. It resembles *Collyriclum faba* but differs in having fewer ovarian lobes, in the position of the genital atrium, in the presence of a ventral sucker, and in the length and structure of the vas deferens and of Laurer's canal which is the longest recorded for any trematode and functions as a vagina. It is distinguished from *Renicola* by the position of the genital pore. P.M.B.

(517g) Tang describes the redia, cercaria and adult of *Genarchopsis chinensis* n.sp. of which the definitive host is *Rhinogobius giurinus*. The new species differs from *G. goppo* and *G. anguillae* in the absence of an egg filament and in the smaller size of the ovary. The modification of the uterus as a receptaculum seminis uterinum is a unique character. Although long-tailed cystophorous cercariae, present in 4·5% of *Paludomus* (*Hemimetra*) *tangi* and 1·7% of *Melania joretiana*, were successfully used for infecting *R. giurinus* the normal mode of infection, presumably through a copepod or other second intermediate host, is unexplained. P.M.B.

(517h) The distribution of villages in which schistosomiasis japonica occurs in Futsing, Fukien Province, corresponds with the sites where oncomelanid snails (*Katayama*) have been reported and is co-extensive with the irrigation system connected with the tributaries of the Lung-Siu River. The average incidence was 24·4%. By far the largest number of people acquire infection before the age of 15 years. *Rattus losea exiguus* and *R. fulvescens huang* acted as reservoir hosts in the area. R.T.L.

(517i) Of 305 schoolchildren between 7 and 12 years of age, each examined by a single NIH swab, 43·8% were found to be infected with Enterobius whereas only one out of 50 college students similarly examined was positive. R.T.L.

(517j) Areca nut proved very effective in a case of *Diphyllobothrium latum* acquired in the U.S.S.R. After the evening meal 50 c.c. of 50% magnesium sulphate was administered, followed the next morning by 200 c.c. of a decoction containing 100 gm. of areca nut. R.T.L.

(517k) Wu presents a study of the life-history of *Euparyphium murinum* which was found naturally infecting ducklings near Canton. When kept in tap-water at a temperature of 30°C. to 32°C. the miracidium developed rapidly within the egg and hatched in about a week, but development at 15°C. to 18°C. was much slower. There were two

generations of rediae. Some cercariae encysted in the same snail after escaping from the rediae without a free-swimming stage, whereas others encysted in other snails or tadpoles. Metacercariae became infective ten days after their formation and remained alive for about 70 days, although their infectivity was reduced after 35 days. They were distinguished from metacercariae of *Echinostoma revolutum* by their smaller size, smaller collar spines and thinner cyst wall. Adult *Euparyphium murinum* developed in experimentally infected ducklings, chickens and rats. P.M.B.

(517l) In Mukden 6 out of 21 dogs, one cat, and 2 out of 96 *Rattus norvegicus* were found to be naturally infected with *Trichinella spiralis*. Of 546 pigs, 99 *R. rattus* and 107 *Mus speciosus* examined, none was positive. R.T.L.

(517m) Helminth eggs embedded in tissues are either there as part of the normal life-cycle of the parasite or are deposited accidentally. The eggs of *Schistosoma japonicum* and *Capillaria hepatica* are examples of the former and those of *Ascaris lumbricoides* and *Enterobius vermicularis* of the latter. The eggs of *S. japonicum* produce a secretion which enables them to pass through the tissues, and the enclosed miracidia die unless this is accomplished within a certain period whereas those of *C. hepatica* may remain alive until the death of the host. Ascaris ova in the tissue generally become encapsulated as foreign bodies. Heterophyid eggs may cause thrombosis and embolism. Paragonimus eggs may cause abscesses and fibroblast proliferation and occasionally lesions in the brain. Granulomas or pseudotubercles in the brain are more frequent in infection with *S. japonicum* than with *S. haematobium* or *S. mansoni*. R.T.L.

(517n) *Diplogaster* sp. and *Rhabditella* sp. were frequently present in pit latrines in Peking and were cultivated successfully on nutrient agar. It is pointed out that unless care is taken in collecting stools from latrines these free-living nematodes may be mistaken for true parasites. The *Rhabditella* sp. is tentatively named *R. multipara* n.sp., although from lack of literature Li was unable to make a definite diagnosis. R.T.L.

(517 o) There is remarkable similarity between the doctrine of spontaneous generation accepted in Western medicine up to the nineteenth century and in old-style Chinese medicine. The Western conception of a vital force under the influence of which various substances could be transformed into parasites corresponds in many ways to the Aura Chinese medical literature. R.T.L.

518—Pflanzenarzt. Vienna.

a. BÖHM, O., 1951.—"Achtung auf das Kartoffelälchen!" 4 (10), 1–2.

(518a) Böhm reports the finding of potato root eelworm, *Heterodera rostochiensis*, for the first time in Austria, in the district of Altenmarkt im Pongau, Salzburg. Stressing the need to prevent further spread, he gives a brief account of the parasite and its life-cycle, symptoms of attack in potatoes, mode of spread, and possible control methods. In conclusion he appeals for potato plants suspected of infestation and soil samples to be sent to the "Bundesanstalt für Pflanzenschutz". B.G.P.

519—Pflanzenschutzberichte. Vienna.

a. WENZL, H., 1951.—"Zum Auftreten des Kartoffel-Wurzelälchens (*Heterodera rostochiensis* Wollenw.) in Österreich." 7 (9/10), 161.

(519a) Wenzl reports a severe but limited outbreak of *Heterodera rostochiensis* in gardens at Pongau in the Salzburg province of Austria. P.M.B.

520—Phytoma. Paris.

a. POIGNANT, P., 1951.—"Quelques notes sur le nématode doré de la pomme de terre." 4 (23), 20–21.

521—Plant Disease Reporter.

a. LOWNSBERY, B. F. & TARJAN, A. C., 1951.—" Pathogenicity of some plant-parasitic nematodes from Florida soils. II. Reaction of celery seedlings to a plant-parasitic nematode complex." 35 (9), 403–404.
b. FELDMESSER, J., FASSULIOTIS, G. & SPRUYT, F. J., 1951.—" Investigations on control of the golden nematode of potatoes." 35 (12), 515–518.
c. RICHARDSON, H. H. & SPRUYT, F. J., 1951.—" Quarantine treatments to control golden nematode cysts adhering to lily-of-the-valley pips : progress report with special reference to plant tolerance." 35 (12), 519–521.
d. JENSEN, H. J., ANDERSON, C. G. & WIEMAN, J., 1951.—" A root-lesion nematode disease of narcissus." 35 (12), 522–523.
e. CRANDALL, B. S., ABREGO, L. & PATIÑO, B., 1951.—" A check list of the diseases of economic plants of El Salvador, Central America." 35 (12), 545–554.

(521a) Celery seedlings grown in autoclaved sand and soil in pots were inoculated with *Trichodorus* sp., *Hemicycliophora* sp., *Dolichodorus heterocephalus*, *Dorylaimus subtilis*, *Mononchus*, *Rhabditis*, *Diplogaster*, *Ditylenchus*, *Acrobeles*, *Hoplolaimus*, Cephalobidae, *Aphelenchoides* and *Tripyla*. After 15 weeks growth at an average temperature of 75°F., the plants in the inoculated soil were significantly smaller than the controls because of reduction in the root system. Although the first four species multiplied during the experiment, no causal relationship was established between any increase of any one species and the reduction in celery root growth. R.T.L.

(521b) As lily-of-the-valley (*Convallaria* spp.), imported from Europe and intercepted at the port of New York by the Division of Foreign Plant Quarantines, had adherent *Heterodera rostochiensis* cysts, experiments were made on the lethal effect of chemical dips, vapour heat treatment, methyl bromide and hydrogen cyanide fumigation. Treatments lethal to the contents of the cysts included formalin 0·5% for ten minutes at 85°F.; Dowicide 2 in dilution of 1 : 2,000 for four minutes at 60°F.; methyl bromide, 11 lb. per 1,000 cu. ft. for eight hours at atmospheric pressure; hot water at temperatures from 112°F. for three hours to 125°F. for ten minutes. A higher proportion of larvae survived in winter cysts than in summer cysts. R.T.L.

(521c) Lily-of-the-valley pips for export from Germany are tied into bundles of 25 pips, packed in wet sphagnum moss and shipped to the U.S.A. under refrigeration at 28° to 30°F. After thawing, immersion in hot water at 118°F. for 30 minutes was the most promising treatment against adherent *Heterodera rostochiensis* cysts, and was well tolerated. Vapour heat was abandoned as it penetrated the densely bunched roots too slowly. Fumigation by methyl bromide at 4⅛ lb. per 1,000 cu. ft. for two hours at 70°F. was well tolerated but proved ineffective against the cysts. Dosages of a mixture of acrylonitrile and carbon tetrachloride or of hydrocyanic gas which were tolerated were ineffective and a higher dosage caused severe injury or death to the pips. In all the chemical dips tested, the limits of tolerance were below the point where cyst mortality was complete. The hot-water treatment as followed at the Plant Inspection House, Hoboken, N.J., is described. R.T.L.

(521d) Narcissus bulbs produced by plants grown in two of the major bulb producing areas of Oregon failed to size properly. There was a premature yellowing, falling and withering of the foliage. The infected plants had only a few roots in the late spring when normal plants are well developed. The surviving roots were short and stubby. These aborted roots contained numerous nematodes belonging to an apparently undescribed species of *Pratylenchus*. The disease has reappeared in the same area even after a two or three year rotation. R.T.L.

(521e) The nematode infections in plants in El Salvador, Central America, mentioned in this list are nematode red ring in *Cocos nucifera* and *Heterodera marioni* in *Coffea arabica*. R.T.L.

522—Plant Disease Reporter. Supplement.

a. HUBERT, F. P., 1951.—" Common names of diseases of woody plants." No. 207, pp. 205–235.

(522a) This list of common names of diseases of woody plants is restricted to the diseases which are known to occur within the United States of America, Alaska, Hawaii, the Panama Canal Zone and Puerto Rico and to those plants which are of economic importance. The common names have been compiled chiefly from those used in the *Plant Disease Reporter* and in *Phytopathology*. Because of national differences in description of symptoms they do not always agree with those used in Canada and Britain. R.T.L.

523—Polskie Archiwum Weterynaryjne.

a. SZWEJKOWSKI, H., 1951.—" Badania nad dioctophymeazą psów." 1 (1), 65–90. [English & Russian summaries.]

b. SOBIECH, T., 1951.—" Rozpoznanie motylicy u bydła za pomocą odczynu śródskórnego." 1 (2), 213–230. [English & Russian summaries.]

(523a) Szwejkowski, in view of recorded cases and his own observations of the occurrence of *Dioctophyme renale* in the body cavity of the final host, carried out experiments which proved Stefanski's hypothesis that the presence of *D. renale* in the abdominal cavity is a transitory stage in its migration from the liver to the kidney. He introduced parasites obtained from a natural infection into the abdominal cavity of dogs and when these were examined later it was found that they had migrated into the kidney. In natural infections they undergo migration into the body cavity and then actively penetrate into the right kidney. The author describes, in great detail, the pathological lesions which are found around the path of the migration within the body cavity. The penetration of *D. renale* into the pelvis of a kidney is mechanical after a softening of the parenchyma by secretions from the worm. This ensures rapid penetration. In the author's opinion the presence of *D. renale* in both the kidney and the abdominal cavity does not prove that it is a single infection. C.R.

(523b) Sobiech reports investigations on 168 cattle from Debowiec, district of Jaslo, Poland, where fascioliasis is enzootic. For the diagnosis of *Fasciola* he used an intradermal test with an antigen prepared as described by Trawiński [for abstract see Helm. Abs., **15**, No. 76e; **16**, No. 273i]. In some of the cattle the test was made on the tail fold and in others on the neck. According to the author, when an animal reacts positively after 15–45 minutes there is a soft painful flat oedema with redness in the centre which disappears in 15–20 minutes. The maximum oedema is found in four hours after injection. It disappears in 7–10 hours. In cases where fascioliasis was diagnosed by faecal examination there were no negative results from the intradermal test. The best results were obtained when the antigen was diluted 1 : 250 and injected in 0·3 c.c.; or 1 : 500 and injected in 0·3–0·5 c.c. Dilutions of 1 : 1,000 gave doubtful reactions and dilution of 1 : 100 produced very great oedema and was obviously too strong. Sobiech found that by employing this test it was possible to diagnose early infections when faecal examinations were still negative. In the animals which harboured *Dicrocoelium dendriticum*, *Moniezia*, trichostrongyles, *Nematodirus* and *Trichuris*, the Fasciola antigen was found to be specific and was only positive where Fasciola was present. C.R.

524—Postgraduate Medicine. Minneapolis.

a. FISHBEIN, M., 1951.—" Trichinosis." [Editorial.] 9 (6), 541–542.

(524a) Fishbein summarises recent published work by Dr. S. E. Gould on trichinosis and draws attention to the fact that whereas in Copenhagen only seven hogs per million were infected, in the U.S.A. trichinae were present in over 14,000 per million. R.T.L.

525—Poultry Science.

a. RIEDEL, B. B. & ACKERT, J. E., 1951.—"Quantity and source of proteins as factors in the resistance of chickens to ascarids." 30 (4), 497–502.
b. TODD, A. C., 1951.—"Effect of antibiotic agents upon experimental *Ascaridia galli* infections in chickens." 30 (5), 763–766.
c. TODD, A. C., 1951.—"Supplemental methionine in the diet and growth of parasitized chicks." 30 (6), 820–824.

(525a) Experimental results are quoted from which it is evident that both the quantity and the sources of protein in the diet of chickens are factors in their resistance to *Ascaridia galli*. R.T.L.

(525b) Data are cited from experiments on battery-reared chickens which indicate that penicillin, streptomycin and neomycin, when added to the basal ration, restrict the size and reduce the number of *Ascaridia galli* and so enable the hosts to attain greater gains in weight. When each of these three antibiotics was fed at the rate of 15 mg. per 1 lb. of food, penicillin was somewhat superior in its anthelmintic effect. R.T.L.

(525c) No consistent evidence was obtained in support of the suggestion of Bolin *et al.* that chickens carrying infections of *Ascaridia galli* could withstand the effects of these parasites when their diet was supplemented with methionine. R.T.L.

526—Poumon.

a. DUBAU, R., BOURDET, P. & CÉLÉRIER, R., 1951.—"L'échinococcose métastatique." 7 (5), 301–305.
b. DUBAU, R. & BOURDET, P., 1951.—"Suite d'une observation d'échinococcose secondaire pleurale. (Greffe d'origine hépatique.)" 7 (5), 313–314.

527—Prensa Médica Argentina.

a. ARANA IÑIGUEZ, R., RODRÍGUEZ BARRIOS, R. & SAN JULIÁN, J., 1951.—"Nueva técnica para la extirpación del quiste hidatídico cerebral. Nota previa." 38 (15), 891–897. [English summary p. 896.]
b. VACCAREZZA, O. A. & TRICERRI, F. E., 1951.—"Resultados del tratamiento quirúrgico del quiste hidatídico de pulmón. A propósito de 41 casos tratados por resección de pulmón sin mortalidad." 38 (18), 1079–1083.
c. VANNI, V. & RADICE, J. C., 1951.—"Estudio del quiste hidático con el microscopio de fluorescencia." 38 (18), 1120–1121.
d. SURRACO, L. A., 1951.—"El quiste hidatídico renal y sus secuelas." 38 (22), 1351–1356.
e. CASTEX, M. R., WANKE, L., CAMPONOVO, L. E. & RECHNIEWSKI, C., 1951.—"Nuevo caso argentino de infestación humana por *Hymenolepis diminuta*." 38 (23), 1415–1418.
f. BAISTROCCHI, J. D. & ASTUDILLO, C. S., 1951.—"Las resecciones pulmonares en la hidatidosis pulmonar y el absceso crónico." 38 (24), 1513–1515.

(527a) Illustrated details are given of a new technique for the removal of a hydatid cyst from the brain. After a large bone flap has been raised and the cyst exposed, air or an appropriate fluid is injected under light pressure into the opposing lateral ventricle. This causes the expulsion of the cyst intact. R.T.L.

(527b) An analysis of 41 cases of hydatid of the lung treated by resection shows that 19 were cured without defect, 14 with thoracic, five with pleural, two with pulmonary and one with bronchial defects. There were no deaths. R.T.L.

528—Presse Médicale.

a. BINET, L. & BÉTOURNÉ, C., 1951.—"Note sur l'ascaridiose." 59 (37), 765.

(528a) Binet & Bétourné report a case of human ascariasis in which the carbohydrate metabolism was disturbed. They found also that extracts of ascaris were highly toxic to goldfish. S.W.

529—Priroda. Moscow.

a. KIRSHENBLAT, Y. D., 1951.—[Effect of plerocercoids of *Ligula intestinalis* on the hypophysis of the roach.] Year 1951, No. 3, pp. 67–68. [In Russian.]
b. KIRSHENBLAT, Y. D., 1951.—[Life-cycle of *Dioctophyme renale*.] Year 1951, No. 3, pp. 68–69. [In Russian.]
c. KIRSHENBLAT, Y. D., 1951.—[On age and seasonal changes in the parasite fauna of rodents.] Year 1951, No. 5, pp. 69–71. [In Russian.]

(529a) Kirshenblat reviews the effect of plerocercoids of *Ligula intestinalis* on the hypophysis of the roach and repeats Kerr's suggestion [for abstract see Helm. Abs., **17**, No. 662a] that roach parasitized by *L. intestinalis* show a considerable reduction in the secretion of gonadotrophic hormones. Pathological changes can be observed in the basophil cells of the transient portion of the hypophysis. C.R.

(529b) Kirshenblat abstracts Woodhead's paper [for abstract see Helm. Abs., **19**, No. 39b] on the life-history of *Dioctophyme renale*. C.R.

(529c) Kirshenblat gives abstracts of papers published by himself, and others (Naumov, Elton and co-workers) on the age of rodents in relation to seasonal changes in their parasitic fauna. C.R.

530—Priroda Človek in Zdravje.

*a. VALENTINČIČ, M., 1951.—"Pijavke v ljudskem zdravstvu." [Leeches in medicine.] **6** (4/5), 128–129.

531—Proceedings of the American Society for Horticultural Science.

a. DAY, L. H. & SERR, E. F., 1951.—"Comparative resistance of rootstocks of fruit and nut trees to attack by a root-lesion or meadow nematode." **57**, 150–154.

(531a) In test plantings in soil infested with *Pratylenchus vulnus*, the pome fruits including apples, pears and quinces showed little if any root injury. Almonds were seriously damaged. Apricots showed good resistance, but in most of the kinds some roots were badly injured. Peaches and plums varied in susceptibility. Of the plums tested Macedonian Wild, Etter's Best and Bruce were highly resistant and of the peaches Bokhara and Yunnan 55885 were partially resistant. Walnuts, figs and olives were susceptible but wingnuts were resistant. R.T.L.

532—Proceedings. Association of Southern Agricultural Workers.

a. CORDNER, H. B., STRUBLE, F. B. & MORRISON, L. S., 1951.—"Reaction of sweet potato varieties and seedlings to root-knot nematode." [Abstract.] 48th Annual Convention (1951), p. 119.
b. TUGWELL, R. L., 1951.—"The effect of vermicides on different phases of the life cycle of the larger roundworm of the fowl." [Abstract.] 48th Annual Convention (1951), p. 152.

(532a) When planted in soil heavily infested with root-knot nematode, 40 seedling lines and four varieties of sweet potato proved highly susceptible. From the data obtained it is concluded that nematode resistance is a recessive factor and its inheritance relatively simple in contrast to stem-rot resistance where inheritance is complex. True nematode resistance occurred in two seedling lines. They were free from surface cracking and scabbiness. Thin slices of the roots were almost free from infection. The parent varieties Orlis and Oklahoma 29 transmitted resistance to their seedlings. R.T.L.

(532b) By using a mass digesting apparatus for the recovery of larvae of *Ascaridia galli* from the intestinal mucosa, and Ackert & Nolf's system for the recovery of those in the lumen, Tugwell found that few or no larvae were obtained after treatment with nicotine-phenothiazine pellets but that the larvae in the wall of the intestine were unaffected. From these observations it is recommended that this treatment should be repeated at a minimum interval of not less than four weeks and that for flocks it should be continuous for at least four weeks to produce the maximum reduction in the worm population. R.T.L.

533—Proceedings of the Hawaiian Academy of Science.

a. CHU, G. W. T. C. & PELGEN, J. L., 1951.—" The presence of a marine schistosome in Hawaii." [Abstract.] 26th Annual Meeting (1950–51), p. 7.

(533a) Schistosome cercariae tentatively indentified as *Cercaria littorinalinae* were found infecting *Littorina pintado*. [See also Helm. Abs., **21**, No. 35a.] They produced dermatitis in experimentally infected human beings. Heat-treated normal human sera formed agglutinates with the cercariae *in vitro*. A precipitate was formed round the cercariae in inactivated sera to which one part in ten of guinea-pig complement had been added. The precipitin reaction also occurred with some of the fresh human sera tested. Investigations on these reactions are being continued. P.M.B.

534—Proceedings of the Louisiana Academy of Science.

a. BENNETT, H. J., 1951.—" Egg production in the trematode *Lecithochirium microstomum* Chandler, 1935." **14**, 7–12.
b. BENNETT, H. J. & BIGLANE, K. E., 1951.—" A rapid technique for the fixation of some trematodes." **14**, 12–13.

(534a) Bennett has studied experimentally the formation of the egg shell in living *Lecithochirium microstomum*. After being fertilized, the ovum, together with a single vitelline cell, passes down the oviduct into the ootype. The shell gland contracts vigorously and a membrane is formed around the ovum and vitelline cell. By pressure on first the oviduct and then the vitelline duct, Bennett demonstrated that no membrane was formed round an ovum unless a vitelline cell was present, but that tiny membranes were formed round single vitelline cells without ova. He is of the opinion that the shell gland produces binding substances for the secretion of the vitelline cells which forms the greater part of the shell. S.W.

(534b) Bennett & Biglane find that for the fixation of some trematodes in an extended condition the following procedure is satisfactory: the specimen is placed on a slide, held by a piece of filter paper, dried slightly and drawn out to the required length and the fixative applied rapidly along the body with a strip of filter paper. Contraction can be avoided by holding the trematode at each end; after a few seconds the specimens can be put into a container of fixative. S.W.

535—Proceedings of the Zoological Society of London.

a. SUBHAPRADHA, C. K., 1951.—" On the genus *Polypocephalus* Braun, 1878 (Cestoda), together with descriptions of six new species from Madras." **121** (2), 205–235.
b. SLOAN, J. E. N., 1951.—" A note on the occurrence of *Trichostrongylus retortaeformis* in the blackbuck (*Antilope cervicapra*)." **121** (3), 723–725.

(535a) The principal characters of eight species of *Polypocephalus* collected from skates on the Madras coast are described and tabulated. Six of the species are new, viz., *P. rhinobatidis* n.sp., *P. lintoni* n.sp., *P. vitellaris* n.sp., *P. rhynchobatidis* n.sp., *P. coronatus* n.sp. and *P. affinis* n.sp. The status of *Polypocephalus* is discussed, its characters are redefined and a key is given to the nine species now included in the genus. R.T.L.

(535b) The occurrence of *Trichostrongylus retortaeformis* in *Antilope cervicapra* is reported at Whipsnade Park, England. Sloan states that it was first found in *A. cervicapra*, *Sciurus carolinensis* and *Erinaceus europaeus* by J. W. G. Leiper. With his permission these new host records are now published for the first time. R.T.L.

536—Protoplasma.

a. BEJDL, W., 1951.—" Der Einfluss von Ultraschallwellen auf die Entwicklung von Froscheiern und auf die Zellteilung der Eier des Pferdespulwurms mit besonderer Berücksichtigung der Grenzflächenspannungen." **40** (1), 54–75.

537—Public Health Reports. Washington.

a. RAUSCH, R., 1951.—" Biotic interrelationships of helminth parasitism." **66** (29), 928–934.
b. HASKINS, W. T., 1951.—" Determination of sodium and copper pentachlorophenates in dilute aqueous solutions." **66** (33), 1047–1051.
c. STOHLMAN, E. F., 1951.—" The toxicity of some related halogenated derivatives of phenol." **66** (41), 1303–1312.
d. HERDT, J. R., LOOMIS, L. N. & NOLAN, M. O., 1951.—" Effect on calves of prolonged oral administration of three potential molluscacides." **66** (41), 1313–1317.

(537a) Rausch enlarges on his earlier account of the biotic interrelationships of helminth parasites in Alaska [for abstract see Helm. Abs., **20**, No. 193b]. Infection of birds with cestodes appears to take place on the arctic breeding grounds while the birds are nestlings or fledgelings. A number of cestodes common in rodents in arctic and sub-arctic Alaska have been found widespread in the U.S.A. and as far south as Mexico City. Trichinelliasis is a serious public health problem in Alaska and field observations support the impression that the arctic strain of Trichinella differs from that found further south in its ability to withstand low temperatures; it appears likely that marine mammals are the main source of infection in man and dog. The epidemiological pattern of hydatid infection in man is typical on the mainland but is not clear on St. Lawrence Island where voles are the predominant intermediate hosts. Either two species of *Echinococcus* are present, both of which infect man, or the effect of the population dynamics of the fox and rodent hosts upon the epidemiological pattern is very great and not yet fully understood. S.W.

(537b) The presence in water of the molluscicides sodium and copper pentachlorophenates in concentrations of 1 to 100 parts per million can be rapidly ascertained by placing 5 ml. of the water to be tested in a 16 by 150 mm. screw-capped culture tube and adding 1 ml. of bicarbonate-methylene blue reagent and 5 ml. of chloroform. The tube is then tightly closed and shaken vigorously for 15 seconds. The tube is then placed upright. As soon as the layers separate the upper layer is definitely blue if the sample contains 10 p.p.m. or less of pentachlorophenate; when the concentration is greater than 10 p.p.m. the upper layer is colourless or very pale blue. For samples containing 25 p.p.m., 50 p.p.m., 100 p.p.m. an additional 1 ml., 2 ml. and 4 ml. of the reagent must be added to the respective samples before the upper layer becomes a definite blue. The tests should be read within 30 minutes as the colour then changes to pink. The method has 20% ± error in the range of 5 to 100 p.p.m. and ± 1 p.p.m. below 5 p.p.m. R.T.L.

(537c) Pentachlorophenol and other related derivatives of phenol, recently shown to possess marked molluscicidal activity, produce in laboratory animals symptoms resembling those of D.D.T. poisoning in rats. Gross post-mortem findings were haemorrhages and congestion of the lungs. Large doses of 2,4,6-triiodophenol, and to a lesser extent of 2,4,6-tribromophenol, produced severe inflammation, corrosion and haemorrhages of the gastric mucosa. R.T.L.

(537d) Repeated sublethal doses of sodium pentachlorophenate, copper pentachlorophenate and pentabromophenol produced no clinical or post-mortem toxic manifestations when administered in drinking water to three young bulls at a dosage of 7·6 mg. per kg. body-weight daily for at least three weeks. It is concluded that with reasonable precautions these chemicals can be safely used in the field as molluscicides. R.T.L.

538—Queensland Agricultural Journal.

a. MILLER, S. J., 1951.—" The liver fluke and black disease of sheep." **73** (4), 229–233.
b. O'SULLIVAN, P. J., 1951.—" Parasitic worm diseases of cattle." **73** (5), 295–304 ; (6), 352–366.

(538a) Although *Fasciola hepatica* infection has only been recorded in sheep from the Warwick-Stanthorpe area of Queensland, its occurrence may be of economic importance especially as it renders animals susceptible to "black disease". Attention is therefore drawn to the differentiation of the three types of fluke disease: (i) acute fluke infection, (ii) chronic

fluke infection and (iii) "black disease". As the encysted flukes may remain on grass for many months they may not be picked up for several months and in these circumstances acute fluke infection and "black disease" may be seen even in late winter. R.T.L.

539—Records of the Australian Museum.

a. JOHNSTON, T. H. & MAWSON, P. M., 1951.—"Report on some parasitic nematodes from the Australian Museum." 22 (4), 289–297.

(539a) Johnston & Mawson list with brief notes the nematodes collected from five species of elasmobranchs, 13 named and three unnamed teleosts, one unnamed and eight named reptiles, one bird and one cetacean. Two of the nematodes are described and illustrated as new to science: *Terranova chiloscylli* n.sp. from *Chiloscyllium punctatum* (type host) and *Emissola antarctica*, and *Stomachus oceanicus* n.sp. from a host believed to be *Globicephalus ventricosus*. S.W.

540—Report of the Administrator of Agricultural Research. U.S. Department of Agriculture.

a: U.S. BUREAU OF ANIMAL INDUSTRY, 1951.—"Livestock and poultry parasite investigations." Year 1950–51, pp. 178–192.

b. U.S. BUREAU OF ENTOMOLOGY & PLANT QUARANTINE, 1951.—"Nematodes infesting potatoes." Year 1950–51, pp. 312–313.

c. U.S. BUREAU OF PLANT INDUSTRY, SOILS, & AGRICULTURAL ENGINEERING, 1951.—"Nematology investigations." Year 1950–51, pp. 425–427.

(540a, b, c) This report includes among others those of (i) the U.S. Bureau of Animal Industry, (ii) the U.S. Bureau of Entomology and Plant Quarantine and (iii) the U.S. Bureau of Plant Industry, Soils, and Agricultural Engineering.

(i) In the report from the Bureau of Animal Industry brief reference is made to parasitism as a potential threat to the cattle industry of southern Louisiana, and to the gains in weight made by unweaned beef calves treated with phenothiazine but larger doses than those usually recommended had little or no advantage. Investigations on lambs showed that phenothiazine has no growth stimulating properties. Controlled experiments confirmed that phenothiazine-salt mixtures taken by free choice prevent the building up of *Haemonchus* infections and depress egg laying. Experimental infection of calves with *Nematodirus helvetianus* produced scouring, loss of appetite and set-back in weight gains. The fringed tapeworm is usually acquired between August and November in western parts of the U.S.A. but infection seldom occurs on irrigated land. *Moniezia expansa* did not cause any injurious effects in experimentally infected lambs and the worms were naturally eliminated within two months. The metallic arsenates of calcium, cobalt, copper and iron were all 100% effective in removing *M. expansa* and were well tolerated. One of these compounds should soon supervene the use of lead arsenate. Heavy natural infections of pigs with *Hyostrongylus rubidus* caused internal haemorrhage and the passing of blood in the faeces. Pigs raised in the coastal plain region of Georgia were less heavily infected with helminths than those raised on bare lots. Pigs exposed to the droppings of Trichinella infected rats were found to have Trichinella larvae in their diaphragms a month later. Whereas the incidence of trichinae was less than 1% in farm-raised pigs, 9% of those known to have been fed on garbage were infected. In Virginia heavy losses in turkeys were due to *Capillaria contorta*. In limited trials bis-(5-chloro-2-hydroxyphenyl) sulphone was effective against *Taenia taeniaeformis* in cats and toluene proved effective against hookworm and ascarids in dogs and cats.

(ii) The report from the Bureau of Entomology and Plant Quarantine states that 2,377 acres infested with *Heterodera rostochiensis* on Long Island were withheld from potato and tomato production during the 1950 crop year under the Federal-State compensation

programme, and that a single specimen tentatively identified as *Ditylenchus destructor* was found near Mount Vernon, Washington.

(iii) The Bureau of Plant Industry, Soils, and Agricultural Engineering reports that during the year ending 1st April 1951 there were 863 interceptions and identifications of cyst-forming nematodes in shipments from abroad, viz., *Heterodera rostochiensis* 194, *H. punctata* 60, *H. cacti* 14, *H. schachtii* 30, *H. trifolii* 20, *H. avenae* 25, *H. göttingiana* 11 and *Heterodera* spp. 509. The task of finding an efficient method for cleaning imported material of nematodes proved much more difficult than was anticipated, but a hot-water-formalin treatment was superior to other methods in experimental tests. Ectoparasitic root nematodes which often cause decline in crops, e.g. strawberries, peanuts and celery, deserve more investigation. Attention has been given to the effect of fertilizers, particularly potash, and supplementary watering or irrigation, in the reduction of damage by nematodes. R.T.L.

541—Report of the Department of Agriculture & Stock, Queensland.

a. MULHEARN, C. R., 1951.—"Division of Animal Industry. Veterinary Services Branch. Internal parasites." Year 1950–51, p. 54.

(541a) Seasonal conditions in 1950–51 were very favourable for the development of heavy infections with helminths, especially *Haemonchus contortus*, and there were cases of gross parasitism in calves in coastal areas. Phenothiazine was relatively ineffective against *Bunostomum* which caused losses in the Darling Downs. Liver-fluke infections in cattle were reported from the Gympie, Woodford and Kilcoy areas and in sheep in the Stanthorpe district where suspected cases of black disease occurred. *Trichostrongylus* spp. caused death in young sheep in the Roma district. R.T.L.

542—Report of the Minister for Agriculture. Dublin.

a. ANON., 1951.—"Veterinary College of Ireland. Parasitology Section." 20th (1950–51), pp. 50–51.
b. ANON., 1951.—"Veterinary Research Laboratory. Parasitology Section." 20th (1950–51), pp. 93–94.
c. ANON., 1951.—"Report of the Agricultural Department, University College, Dublin. (7) Agricultural Zoology: (i) Eelworms." 20th (1950–51), Appendices pp. [15]–[16].

(542a) Of 102 samples of horse faeces examined at the Veterinary College of Ireland Parasitology Section, 63% showed redworm infection, and in 21% there were redworm and Ascaris eggs. An infective hydatid cyst was found in the liver of an aged horse. In cattle, trichostrongyle eggs were seen in 53%, and in 24% there were trichostrongyle and fluke eggs. Infective hydatid cysts were noted in the liver and lung of one aged cow. The most prevalent intestinal parasites in dogs and cats were *Uncinaria stenocephala* and *Toxocara canis*. A *Cysticercus tenuicollis* was identified from the liver of a monkey. R.T.L.

(542b) The Veterinary Research Laboratory of the Department of Agriculture of Ireland reports that in specimens examined from 2,939 cattle, *Fasciola hepatica* occurred in 1,288 and trichostrongyles of pathogenic significance in 230. Of 132 sheep 20 had *F. hepatica* and 43 had trichostrongyles of pathogenic significance. Strongyles occurred in 120 out of 950 horses and 61 showed evidence of ascariasis. Ascaris of pathogenic significance occurred in 14 out of 39 pigs. R.T.L.

(542c) The Agricultural Department, University College, Dublin has established a laboratory to deal with potato eelworm problems. It is capable of dealing with about 100 soil samples weekly. A survey is being made to determine the extent to which sugar-beet eelworm exists in Ireland. Work has also begun on the establishment of eelworm-free runner beds for the propagation and sale of strawberry runners free from eelworm infection. R.T.L.

543—Résultats Scientifiques de l'Exploration Hydrobiologique du Lac Tanganika. Brussels.

a. PRUDHOE, S., 1951.—" Trematoda, Cestoda and Acanthocephala." (1946–47), 3 (2), 1–10.

(543a) A small collection of helminths from Lake Tanganyika included two specimens of *Cladocystis tanganyikae* n.sp. probably from *Lamprichthys tanganicanus* or a cichlid. The body is flattened and somewhat pyriform in outline, measuring 2·5 mm. in length and a maximum of 1 mm. in width. It differs from *C. trifolium* in the ratio of the diameter of the oral sucker to that of the ventral sucker and in the absence of a trilobed ovary, and from *C. intestinalis* in the size of the eggs and in the anterior extent of the vitelline follicles. Prudhoe suggests that if the classification of Price (1940) be followed, *Cladocystis* should be transferred from the Opisthorchiidae to the Acanthostomatidae, on the basis of the extent of the Y-shaped excretory vesicle. The following cestodes were obtained: *Monobothrioides cunningtoni* from *Auchenoglanis occidentalis*, two specimens tentatively identified as *Lytocestoides* sp. from *Parectodus* sp., *Proteocephalus beauchampi* which is now more fully described from *Chrysichthys brachynema* and which may be identical with *P. sulcatus*, *Choanotaenia riccii* and *Hymenolepis multiformis* (?) from *Spenorhynchus abdimii*. A few specimens provisionally identified as *Acanthosentis tilapiae* were obtained from *Tilapia tanganicae*. P.M.B.

544—Revista de Agricultura. São Paulo.

a. CARVALHO, J. C., 1951.—" Nematóides semi-parasitas ou saprófitas?" 26 (7/8), 219–229. [English summary p. 228.]

b. LORDELLO, L. G. E., 1951.—" Sôbre o estado atual da taxonomia dos nematóides causadores das galhas nas raízes." 26 (7/8), 247–250. [English summary pp. 249–250.]

(544a) This brief review touches on the nomenclature of *Aphelenchus* and *Aphelenchoides* and on the effects of desiccation on the life-histories of *Anguina tritici* and *Heterodera marioni* (*Meloidogyne exigua*, Goeldi). Carvalho mentions species of *Rhabditis*, *Diploscapter*, *Cephalobus* and *Aphelenchoides* associated with diseased coffee roots and raises the question of the status of these and other genera as semi-parasites or saprophytes. J.B.G.

(544b) Lordello claims to have explained the taxonomy of the root-knot nematode by a series of reasons justifying Chitwood's proposed use of *Meloidogyne* spp. Goeldi, 1892 in place of *Heterodera marioni* (Cornu, 1879) Goodey, 1932. J.B.G.

545—Revista Brasileira de Medicina.

a. BARRETO, Z. P. & ACCIOLY, J., 1951.—" Hematopenia esplénica esquistossomótica. (Contribuição ao estudo do hiperesplenismo.)" 8 (6), 395–398.

(545a) After splenectomy had been performed on two cases of haematopenia associated with *Schistosoma mansoni* infection, the leucocyte count returned to nearly normal within a few days. R.T.L.

546—Revista Clínica Española.

a. OBRADOR, S., RODRÍGUEZ MIÑÓN, J. L., ALÉS, J. & SÁNCHEZ JUAN, J., 1951.—" Hidatidosis raquimedular asociada a cisticercosis generalizada." 40 (5), 323–326.

b. MARTÍNEZ ALONSO, E., 1951.—" Pioneumotórax hidatídico." 41 (2), 114–116.

547—Revista Clínica de São Paulo.

*a. COUTINHO, J. O., CAMPOS, R. & AMATO NETO, V., 1951.—" Nota sôbre diagnóstico e prevalência da estrongiloidose em São Paulo." 27 (1/2), 1–20.

548—Revista Cubana de Laboratorio Clínico.

a. SOTOLONGO, F., 1951.—" Falsos hallazgos parasitológicos y pseudoparásitos macroscópicos." 5 (1), 185–198.

549—Revista Cubana de Pediatría.

a. BARRERAS, L., LABOURDETTE, J. M. & PÉREZ RUANO, A., 1951.—"Acción de la adrenalina sobre eosinofilias de origen parasitario." 23 (5), 300–303.

(549a) Injections of adrenalin greatly reduced the eosinophilia in a group of children infected with hookworm, and in one child with trichuriasis. Its action was similar to that of the hormones cortisone and adrenocorticotropin. The method using 1% Phloxine is recommended for determining the percentage of eosinophils present. P.M.B.

550—Revista Española de Pediatría.

a. FERREIRÓS ESPINOSA, L., 1951.—"Ascaridiosis, apendicopatía y obstrucción intestinal." 7 (3), 389–400. [English, French & German summaries p. 398.]

(550a) Operation on a child in which the clinical diagnosis was mechanical obstruction, revealed perforation of the appendix and obstruction of the last part of the ileum by pressure, with Ascaris free in the abdominal cavity. Similar cases recorded in the literature are discussed. R.T.L.

551—Revista Española de Tuberculosis.

a. CAÑIZARES, M. & CELIS, J., 1951.—"Observaciones sobre la paragonimiasis en el Instituto Quezón." 20 (190), 39–46.

(551a) After briefly summarizing the pathology, symptomatology, diagnosis and treatment of paragonimiasis of which the two main endemic regions in the Philippines are Samar and Leyte, Cañizares & Celis give case reports of the five Filipinos seen at the Quezon Institute during the last five years, each of whom received different treatment. Four X-ray photographs illustrate the progress during the three months which followed treatment by daily injections for six days of $\frac{1}{3}$ gm. of emetine hydrochloride. This was the only treatment which was apparently successful. R.T.L.

552—Revista Ibérica de Parasitología.

a. LÓPEZ-NEYRA, C. R., 1951.—"Análisis crítico de los géneros *Choanotaenia, Anomotaenia* y afines con redescripción de la *Taenia porosa* Rudolphi 1819 [= 1810] e invalidez del género *Paricterotaenia*. (Primera parte)." 11 (4), 337–368.

b. LÓPEZ-NEYRA, C. R. & BALCÁZAR RUBIO, M., 1951.—"La dirofilariosis conjuntival, nueva afección humana." 11 (4), 369–386. [English summary pp. 384–385.]

(552a) *Taenia porosa* Rudolphi, 1810 is redescribed from specimens collected in central Spain from its type host, *Larus ridibundus*. As the uterus breaks up into numerous capsules containing single eggs it belongs to *Choanotaenia*. López-Neyra is convinced that *T. porosa, Anomotaenia gongyla* and *Choanotaenia stercoraria* are identical, and that *Paricterotaenia*, for which Fuhrmann made *T. porosa* the type, must disappear. How its 44 species must be dispersed among the other genera is discussed at great length. With the aid of three tables the various measurements of different species are compared. R.T.L.

(552b) López-Neyra & Balcázar Rubio diagnose as *Dirofilaria conjunctivae* an immature female worm recovered from a cystic nodule on the forearm of a woman in Alicante. The specimen which lacked the anterior end measured 83 mm. × 0·34 mm. This is the first record of the occurrence of this species in a human being in Spain. The 21 cases reported in man elsewhere to date are briefly commented upon. The authors consider *D. repens, Filaria inermis, F. apapillocephala, F. peritonei-hominis, F. labialis* (Pierantoni, 1908 *nec* Pane, 1864), *Loa extraocularis, Filaria* sp. of Parodi & Bonavia and *Onchocerca* sp. of Anda to be synonyms of *D. conjunctivae*. R.T.L.

553—Revista del Instituto Nacional de Biología Animal. Lima.

a. ARNAO MENDOZA, M., 1951.—" Parásitos identificados en el Instituto Nacional de Biología Animal 1946–1951." **2** (2/3), 76–81.

(553a) Arnao Mendoza lists the species of parasites of domestic animals, including helminths, identified by her at the Parasitological Laboratory of the National Institute of Biology, Lima, Peru between 1946 and 1951. R.T.L.

554—Revista Kuba de Medicina Tropical y Parasitología.

a. BASNUEVO, J. G., COWLEY CHÁVEZ, O., SOTOLONGO, F., BLANCO RABASSA, E. & ACHKAR, R., 1951.—" Un nuevo tratamiento de la tricocefaliasis (20 casos curados)." **7** (5/6), 57–59.
b. CALVÓ FONSECA, R., 1951.—" Incidencia de la *Hymenolepis diminuta* en parasitismo humano en Cuba." **7** (5/6), 67–68.
c. BASNUEVO, J. G., COWLEY CHÁVEZ, O. & BLANCO RABASSA, E., 1951.—" Ocho casos de tricocefaliasis tratados por los enemas de hexilresorcinol (santokín)." **7** (5/6), 68–74.
d. BASNUEVO, J. G. & COWLEY CHÁVEZ, O., 1951.—" Los enemas de 'santokín líquido' en el tratamiento de la oxyuriasis." **7** (5/6), 74–75.
e. NÁJERA, L. E. & CONEJOS, M., 1951.—" Sobre el hallazgo de cisticercosis cardíaca en el zorro (*Pseudalopex gracilis*)." **7** (7/8), 81–84.
f. BASNUEVO, J. G., COWLEY CHÁVEZ, O., SOTOLONGO, F., BLANCO RABASSA, E. & ACHKAR, R., 1951.—" A new treatment for trichocephaliasis." **7** (7/8), 84–86.
g. BASNUEVO, J. G. & BORGES HERNÁNDEZ, F., 1951.—" Tratamiento de la tricocefaliasis con hexilresorcinol (santokín) en forma de enemas. Reporte de cuatro casos curados." **7** (7/8), 86–92. [English summary p. 92.]
h. CALVÓ FONSECA, R., 1951.—" Una nueva endemia parasitaria en Cuba 'la inermicapsiferiasis'." **7** (7/8), 92–96 ; (9/10), 108–119.
i. ALBARRÁN CARBAJAL, C. & CASIS SACRE, G., 1951.—" Denominación de las enfermedades parasitarias." **7** (7/8), 99–100.
j. BASNUEVO, J. G., COWLEY [CHÁVEZ], O., BLANCO RABASSA, E., ACHKAR, R. & MADURO, F., 1951.—" Cien casos de tricocefaliasis curados con los enemas de hexilresorcinol (santokín)." **7** (9/10), 105–108. [English summary p. 108.]
k. BASNUEVO, J. G., LAVÍN, F., BORBOLLA, L., RODRÍGUEZ SALINAS, E., COSTALES, F. & CEPERO, R., 1951.—" Nueve casos de tricocefaliasis curados con los enemas de hexilresorcinol (santokín)." **7** (9/10), 119–127. [English summary p. 126.]
l. BASNUEVO, J. G. & BORBOLLA, L., 1951.—" Violeta de genciana en solución alcalina para el tratamiento de la strongyloidiasis y la oxyuriasis." **7** (9/10), 128.

(554a) In all of 20 cases of trichuriasis, complete cures were obtained with 3 to 6 enemas of "Santokin" [hexylresorcinol] carried to the caecum in 10% gum arabic solution at the rate of 1:300. P.M.B.

(554b) The finding of eggs of *Hymenolepis diminuta* in the faeces of two children brings the total of recorded human cases of infection with this parasite in Cuba to 20. P.M.B.

(554c) A further eight cases of trichuriasis which were cured with enemas of "Santokin" [hexylresorcinol] are recorded. P.M.B.

(554d) Basnuevo & Cowley Chávez report three cases of enterobiasis which appeared to be cured after five enemas of "Santokin" [hexylresorcinol] at the rate of 15 c.c. per 300 c.c. of either 10% gum arabic solution or 1% tragacanth solution, at intervals of 5 days; 15 c.c. of this solution per 1 lb. body-weight to a maximum of 1,200 c.c. is recommended. Gentian violet, which was given orally in previous cases treated with "Santokin", was not administered. P.M.B.

(554e) [This paper is reprinted from *Rev. ibér. Parasit.*, 1951, **11** (1), 11–21. For abstract see Helm. Abs., **20**, No. 46b.]

(554f) [This is an English translation of a paper published in *Rev. Kuba Med. trop. Parasit.*, 1951, **7** (5/6), 57–59. For abstract see No. 554a above.]

(554g) Three to six enemas of hexylresorcinol 1:300 injected as far as the caecum, with intervals of three to seven days between each, cured four cases of trichuriasis. After the first enema, great numbers of disintegrated whipworms were expelled. The diarrhoea disappeared and the patient regained weight. Three formulae are suggested: (a) 1 gm. hexylresorcinol with 30 gm. barium sulphate; (b) 1 gm. hexylresorcinol with 30 gm. acacia; (c) 1 gm. hexylresorcinol with 30 gm. acacia and 15 gm. colloidal kaolin. Each is made up to 300 c.c. with lukewarm water. R.T.L.

(554h) Calvó Fonseca reports nine new occurrences of *Inermicapsifer cubensis* in man in Cuba, bringing the total number recorded to 111. He considers that this apparently non-pathogenic parasite, which has recently become endemic in Cuba, is as common there as *Taenia saginata*. The life-cycle is unknown; man is probably an accidental host. Out of 100 cases, 64 were children under four years of age. Of 95 cases in which the race was recorded, 91 were white and four were mestizo; there were no negroes. About half the infections occurred in men and half in women. The geographical distribution is tabulated. P.M.B.

(554i) [This paper is reprinted from *Medicina, Rev. Mex.*, 1949, **29** (588), 377–379.]

(554j) Basnuevo *et al.* report 100 cases of trichuriasis, ranging from 1½ to 26 years of age, which were completely cured with enemas of hexylresorcinol in glycerin at a concentration of 1:300. P.M.B.

(554k) Basnuevo *et al.* report the cure of nine further cases of trichuriasis in children aged from 1 to 3 years, with from 3 to 10 enemas of hexylresorcinol. Approximately 15 c.c. per lb. body-weight of the following mixture is recommended: Santokin (hexylresorcinol) 60 c.c., acacia 120 gm., kaolin 60 gm., dried aluminium hydroxide gel 60 gm., made up to 1,200 c.c. with water. For adults not more than 1,500 c.c. should be used. P.M.B.

(554l) As it is impracticable to administer gentian violet tablets to very young children, Basnuevo & Borbolla have used the following preparation for three cases with *Strongyloides stercoralis*: gentian violet 1 gm., sodium carbonate 10 gm., sugar 500 gm., granulated with alcohol and dried at 60°C. A dose of 0·001 gm. dissolved in a little milk or sugar water given daily for 20 days, resulted in negative faeces examinations; there was no vomiting. Similar results were obtained in two cases of enterobiasis. The course may be repeated if necessary. P.M.B.

555—Revista Médica de Chile.

a. NEGHME, A. & SILVA, R., 1951.—"Nueva contribución al estudio epidemiológico de la amebiasis y otras enteroparasitosis en Chile. (Con especial referencia a sectores rurales)." **79** (7), 449–457. [Discussion p. 457.]

(555a) [This is a fuller account of a paper published in *Bol. Inform. parasit. chil.*, 1951, **6** (2), 21–23. For abstract see Helm. Abs., **20**, No. 187a.]

556—Revista de Medicina e Cirurgia de São Paulo.

a. MEIRA, J. A., BEHMER, O. A. & BLOISE, W., 1951.—"Endarterite pulmonar esquistosomótica. A propósito de um caso com comprovação necroscópica." 11 (4), 169–178. [English summary p. 177.]

(556a) A case is reported of schistosomiasis mansoni, not diagnosed during life, in which the cause of death was ascertained at post-mortem to have been chronic schistosome cor pulmonale. Six photomicrographs illustrate the endarteritis obliterans. R.T.L.

557—Revista do Serviço Especial de Saúde Pública. Rio de Janeiro.

a. BUSTORFF PINTO, D., ROBERT, C. & MAIA PENIDO, H., 1951.—"Resultados de experiências com diversos planorbicidas no Vale do Rio Doce." 4 (2), 357–370. [English summary p. 369.]

b. DESLANDES, N., 1951.—"Técnica de dissecação e exame de planorbídeos." 4 (2), 371–382. [English summary p. 382.]

c. MAIA PENIDO, H., BUSTORFF PINTO, D. & DESLANDES, N., 1951.—"Estudo comparativo da anatomia interna de caramujos provenientes de Minas Gerais, Bahia, Pernambuco e Pará." 4 (2), 383–405. [English summary pp. 404–405.]

d. MAIA PENIDO, H., BUSTORFF PINTO, D. & DESLANDES, N., 1951.—"Observações sôbre as posturas e tempo de evolução de duas espécies de caramujos encontrados no Vale do Rio Doce." 4 (2), 407–412. [English summary p. 412.]

e. DEANE, L. M., 1951.—"Observações sôbre alguns hábitos dos adultos de *Culex fatigans*, o principal transmissor da filariose em Belém, Pará." 4 (2), 423–464. [English summary pp. 443–445.]

f. COSTA, O. R. DA, MANCEAU, J. N., MAROJA, R. & ANDRADE, G. C. DE, 1951.—"Observações sôbre a ação do hexylresorcinol nas infestações por ancilostomideos, áscaris e tricocéfalo." 4 (2), 465–474. [English summary pp. 470–471.]

g. COUTINHO DA SILVEIRA, S., 1951.—"Contribuição ao estudo anátomo-patológico do miocárdio na esquistossomose mansoni." 4 (2), 559–613.

(557a) Experiments against the planorbid vectors of *Schistosoma mansoni* in the Rio Doce Valley, Minas Geraes, were made with calcium oxide, copper sulphate, copper sulphate and tartaric acid, copper sulphate and copper carbonate, copper sulphate and acetic acid, ammonium sulphate, Rhodiatox in 5% emulsion (an organic phosphorus derivative), Deteroz (D.D.T. 30%), Gammexane LG-140 (10% γ-benzene hexachloride), Gammexane LG-215 (31% γ and 14% δ-benzene hexachloride), Gammexane LG-940 (90% γ-benzene hexachloride), Santophen-20 (pentachlorophenol), Santobrite-N (sodium pentachlorophenate), δ-benzene hexachloride in Duponol-OS, Timbó. Santobrite-N, and copper sulphate were the only two chemicals which caused a 100% mortality. Treatment should be repeated at intervals of 10–15 days to eradicate the snails in their breeding places as, in the authors' experience, the snails oviposit within a minimum of 26 days. Two maps of the area under experiment are appended. R.T.L.

(557b) A method of dissection of molluscs to reveal the internal anatomy is described and illustrated by a series of diagrams. The prostate and ovo-testes can be suitably stained by a 40% alcoholic solution of iodine. R.T.L.

(557c) From a study of the internal anatomy of planorbid snails from the Rio Doce Valley and Aimorés in Minas Geraes, and from São Lourenço da Mata in Pernambuco, Joazeiro in Bahia and Belém in Pará, it appears that there are two species present; one, most usually found in the Rio Doce Valley and Aimorés, closely resembles *Australorbis glabratus*; the other, found in the remaining three localities and in the Governador Valadares in Minas Geraes, is apparently *Planorbis* [*Tropicorbis*] *centimetralis*. R.T.L.

(557d) Observations are recorded on the biology of *Australorbis glabratus* and *A.* [*Tropicorbis*] *centimetralis* in the Rio Doce Valley with particular reference to the number of eggs laid and their development, and resistance to desiccation. Seven generations were produced in a single year. R.T.L.

(557e) In Belém, Brazil, *Culex fatigans*, the main vector of bancroftian filariasis, formed over 99·9% of all mosquitoes captured in domestic dwellings. 49·3% of all the mosquitoes and 51·7% of the females were caught in bedrooms, chiefly behind and under furniture, on clothes and on that part of the walls above three metres. In one series captured 90·2% contained human blood. The frequency curves of captures corresponded with that of rainfall. As the density of *C. fatigans* remained high throughout the year, a single annual spraying with insecticides was insufficient for its control. R.T.L.

(557f) There is no significant difference in the effectiveness of action of hexylresorcinol

when given as pills or in capsules for the treatment of ancylostomiasis, trichuriasis and ascariasis. R.T.L.

(557g) From a study of the histopathology of the heart, liver and other organs in 27 cases of schistosomiasis mansoni, it is apparent that chronic interstitial myocarditis is uncommon in Brazil. R.T.L.

558—Revue de Médecine Vétérinaire. Lyon et Toulouse.

a. EUZÉBY, J. & LAINÉ, B., 1951.—"Sur la périodicité des microfilaires de *Dirofilaria immitis*. Ses variations sous l'influence de divers facteurs." **102**, 231–238.

(558a) Euzéby & Lainé found that the periodicity of the microfilariae of *Dirofilaria immitis* was predominantly diurnal; although microfilariae could be found in the peripheral blood at all times of the day, the maximum number was found at 8 p.m. and the minimum at 8 a.m. A rapid increase in the number of microfilariae in the blood was induced by the injection of adrenaline and a less striking increase by keeping the infected dog in a warm bath (40°C.) for 15 minutes in order to raise the body temperature. Injections of serum did not appear to have a constant effect. S.W.

559—Revue d'Oto-Neuro-Ophtalmologie.

a. MATAVULJ, N., 1951.—"La cysticercose cérébrale et oculo-cérébrale." **23** (1), 15–24.

(559a) Cerebral cysticerciasis has rarely been reported in France. Clinical reports of three cases are now given. One had been diagnosed as a tumour of the third ventricle and one as encephalitis. The ocular symptoms in the third case enabled an accurate diagnosis to be made. R.T.L.

560—Revue de Stomatologie.

a. JACOWSKI, M., 1951.—"La stomatite helminthiasique." **52** (5/6), 338–344. [Discussion p. 345.]

(560a) In Indo-China Jacowski frequently diagnosed helminth infections by inspection of the mouth instead of by faeces examination. He considers that congestion of the lateral or terminal lingual papillae, red papules on the palate and a branched rose-pink colouring of the soft palate are diagnostic features of ascariasis. Grey papules, sometimes with a porcelain-like appearance of the mucosa, are often an indication of an old-established infection, frequently with trichuris. The question is raised as to whether these manifestations are phenomena of sympathetic reaction arising from irritation of intestinal origin or an allergic stomatitis carried by the blood. P.M.B.

561—Rhodesian Farmer.

a. DAULTON, R. A. C. & STOKES, W. M., 1951.—"Electrical treatment kills root pests. Preliminary investigations described." **5** (4), 9.

(561a) [This paper has also appeared in *Rhod. Tobacco J.*, 1951, **3** (6), 108–109, 121; and *Fmrs' Weekly, Bloemfontein*, 1951, **81**, 41 (June 20). For abstract see Helm. Abs., **20**, No. 212a.]

562—Rhodesian Tobacco Journal.

a. MARTIN, G. C., 1951.—"Ethylene dibromide proves itself in eelworm campaign." **3** (6), 70–78, 107.

b. DAULTON, R. A. C. & STOKES, W. M., 1951.—"High frequency electric currents kill eelworm." **3** (6), 108–109, 121.

(562a) Extensive experiments on the control of root-knot by ethylene dibromide in the U.S.A. and in the Union of South Africa have been followed by its successful large scale commercial application. Martin recounts local experiments with Dowfume W-85,

a concentrate of 83% ethylene dibromide, and gives advice on its use to Rhodesian tobacco growers. The concentrate, with power paraffin as a diluent, should be injected to a depth of 6–9 inches at 15 sq. in. spacing. The seed-bed sites should preferably be fumigated between mid-April and the end of May and new land should have been cleared before the end of February. R.T.L.

(562b) [This paper has also appeared in *Rhod. Farmer*, 1951, **5** (4), 9; and *Fmrs' Weekly, Bloemfontein*, 1951, **81**, 41 (June 20). For abstract see Helm. Abs., **20**, No. 212a.]

563—Riforma Medica. Naples.

a. SCEBBA, G., 1951.—"Voluminosa cisti di echinococco simulante cistoma ovarico." **65** (25), 685–688.

564—Rivista di Parassitologia.

a. RICCI, M., 1951.—"Sulla diffusione delle parassitosi intestinali in un piccolo centro siciliano." 12 (4), 233–239. [English & French summaries pp. 238–239.]
b. RIZZOTTI, G. & NERI, P., 1951.—"Parassiti intestinali osservati nell'Imperial Ethiopian Medical Research Institute di Addis Abeba durante gli anni 1948, 1949 e 1950." 12 (4), 241–244. [English & French summaries p. 244.]
c. RICCI, M., 1951.—"Sulla diffusione della ossiurosi nella popolazione infantile di un piccolo centro siciliano." 12 (4), 245–249. [English & French summaries p. 249.]
d. PUJATTI, D., 1951.—"Probabili acanthellae di *Echinopardalis bangalorensis* Pujatti nel *Bufo melanosticus* Schneider." 12 (4), 251–255. [English & French summaries p. 255.]
e. BOSCARDI, F. & COLTORTI, M., 1951.—"Ricerca di sostanze ad azione mucinolitica in estratti di *Ascaris lumbricoides* e di *Fasciola hepatica*." 12 (4), 257–260. [English & French summaries p. 260.]

(564a) The incidence of helminth infections in 164 individuals in Montemaggiore Belsito (Palermo) was *Hymenolepis nana* 16·46%, *Ascaris lumbricoides* 3·04%, *Enterobius vermicularis* 6·09% and *Trichuris trichiura* 12·8%. R.T.L.

(564b) During the three years 1948, 1949 and 1950 the faeces of 3,298 individuals were examined at the Imperial Ethiopian Medical Research Institute at Addis Ababa. The number of cases of helminth infection found was *Trichuris trichiura* 235, *Strongyloides stercoralis* 207, *Ancylostoma duodenale* 46, *Enterobius vermicularis* 31, *Ascaris lumbricoides* 151, *Schistosoma mansoni* 6, *Hymenolepis nana* 32 and *Taenia* sp. 54. R.T.L.

(564c) Using Graham's cellulose tape method, Ricci found that of 318 children in Montemaggiore Belsito (Palermo), 77·14% were positive for *Enterobius vermicularis* at the first examination. Of the 75 who were found negative 42 were re-examined and of these 17 were found to be infected. The estimated percentage is 85·84% at the second examination. R.T.L.

(564d) Degenerating acanthellae encysted in *Bufo melanosticus* collected near Bangalore are considered by Pujatti to be larvae of *Echinopardalis bangalorensis*. R.T.L.

(564e) The viscosimetric method failed to reveal the presence of mucinases in extracts of *Ascaris lumbricoides* or *Fasciola hepatica*. R.T.L.

565—Rundschau für Fleischbeschauer und Trichinenschauer.

a. ANON., 1951.—"Zum Kapitel Trichinenschau." 3 (1), 6.
b. BELLERSEN, 1951.—"Über eine Trichinose-Epidemie." 3 (2), 18–19.
c. WETZEL, R., 1951.—"Über die Finnen der Schlachttiere." 3 (4), 52–54.

(565b) [This paper appears in full in *Lebensmitteltierarzt*, 2, 97–103. For abstract see Helms. Abs., **20**, No. 118a.]

(565c) Wetzel gives an account of the tapeworm larvae which infect cattle, sheep and pigs with special reference to *Cysticercus bovis*, *C. cellulosae*, *C. tenuicollis*, *Coenurus*

cerebralis and hydatid. After dealing with life-histories and pathology (briefly) he emphasizes that the most important control measures are strict meat inspection and the destruction of infected material combined with the elimination of adult worms from the human or canine final hosts. A.E.F.

566—Schweizer Archiv für Neurologie und Psychiatrie.

a. LOTMAR, F., 1951.—" Zur Frage der Verursachung von Herdsymptomen des Grosshirns durch Ascaridiasis." **67** (2), 306–322.

(566a) Lotmar gives detailed accounts of two cases in which epileptic and hemiparetic symptoms were believed to be caused by local allergic reactions to aberrant migration of Ascaris larvae into the brain. A.E.F.

567—Schweizer Archiv für Tierheilkunde.

a. BOUVIER, G., BURGISSER, H. & SCHWEIZER, R., 1951.—" Observations sur les maladies du gibier et des poissons en 1949 et 1950." **93** (4), 275–281.

(567a) During post-mortem examinations made at the Galli-Valerio Institute in Lausanne, the following helminths were found: lungworms in *Capra ibex, Cervus cervus* and *Capreolus capreolus*; *Dicrocoelium dendriticum* in *Capra ibex* and *Capreolus capreolus*; *Fasciola hepatica* and *Moniezia rupicaprae* in *Rupicapra rupicapra*; *Cysticercus tenuicollis* and intestinal strongyles in *Capra ibex*; *Protostrongylus commutatus, Trichostrongylus retortaeformis, Trichuris leporis, Cittotaenia pectinata* and *D. dendriticum* in hares; *Capillaria aerophila, C. plica, Uncinaria stenocephala, Ascaris* and *Taenia pisiformis* in *Vulpes vulgaris*. The incidence of *D. dendriticum* in hares imported from Hungary and Czechoslovakia was only 2% which is much lower than in Swiss hares. R.T.L.

568—Schweizerische Zeitschrift für Tuberkulose.

a. WEHRLIN, H., 1951.—" Zur Differentialdiagnose der Meningitis tuberculosa (Meningo-Encephalitis bei Askaridentoxikose)." 8 (4), 354–359. [English, French & Italian summaries pp. 358–359.]

(568a) Wehrlin describes a case of unexplained meningo-encephalitis in a 25-year-old male who was recovering from primary tuberculosis of the lungs. Later eosinophil lung infiltrations developed. An eosinophilia of 48% and the presence of Ascaris in the stools led to a diagnosis of ascariasis which it is considered was responsible both for the meningeal symptoms and for the lung infiltrations. A.E.F.

569—Science.

a. HEMMING, F., 1951.—" Zoological nomenclature : Notice of proposed suspension of rules in certain cases for avoidance of confusion and the validation of current nomenclatorial practice (A. (n.s.) 9)." **114** (2965), 448.
b. HOFFMAN, D. O. & ZAKHARY, R., 1951.—" The effect of temperature on the molluscacidal activity of copper sulfate." **114** (2968), 521–523.
c. LAL, M. B., CHOWDHURY, N. K. & KISHOR, K., 1951.—" Purification of the anticoagulant principle obtained from the Indian cattle leech, *Hirudinaria*." **114** (2974), 696–697.

(569a) One of the questions under consideration is whether *dentatus* Diesing, 1839, in the binominal combination *Stephanurus dentatus*, should be preserved as the name of the kidney worm of swine. R.T.L.

(569b) Hoffman & Zakhary describe laboratory experiments which confirm that temperature is a factor of primary importance in determining the mollusicidal activity of copper sulphate on *Biomphalaria boissyi*. The LD_{50} (*B. boissyi* vs. copper sulphate) is apparently inversely proportional to the cube of the oxygen consumption rate. R.T.L.

570—Science and Culture. Calcutta.

a. ANANTARAMAN, M., 1951.—" The development of *Moniezia*, the large tapeworm of domestic ruminants." 17 (4), 155–157.

(570a) Anantaraman gives a preliminary report on his work in India since 1943 on the transmission of *Moniezia expansa* and *M. benedeni* by the oribatid mite *Scheloribates madrasensis*. The cysticercoid of *M. expansa* took 5 weeks to develop fully during the warm season and 7 weeks in the cold season; that of *M. benedeni* took from 6 to 8 weeks. A mite *Galumnia* sp. was experimentally infected with *M. benedeni*. P.M.B.

571—Science Reports of the Tôhoku University. 4th Series. Biology.

a. TADANO, Y., 1951.—" Studies of cleavage in the eggs of nematode. I." 19 (1), 100–103.

(571a) Tadano has studied *in vitro* the fertilization and first cleavage division of eggs of *Rhabditis* sp. (parasitic on *Armadillium vulgare*). Two polar bodies are formed after the spermatozoon has penetrated the ovum. From his observations Tadano concludes that the streaming of the cytoplasmic granules is passive and caused by movements of the aster and spindle. The streaming is more distinct at the poles than at the equator and the cleavage plane is formed by the fusion of granules at the equatorial plane of the spindle. S.W.

572—Semana Médica. Buenos Aires.

a. DEFILIPPO, R. A., FERRANDO, F. F., MIERES, A. & VIQUEIRA CASAL, J., 1951.—" Sobre una forma infrecuente de diseminación hidatídica." Año 58, 2 (3006), 351–356.
b. CARRI, E. L. & CELLERINO, N. A., 1951.—" Regionalización de las parasitosis en la República Argentina." Año 58, 2 (3009), 482–488.
c. ROSAS COSTA, G. A., 1951.—" Las parasitosis intestinales. Enfermedad social." Año 58, 2 (3011), 570–577.
d. BASNUEVO, J. G., COWLEY CHÁVEZ, O., SOTOLONGO, F., BLANCO RABASSA, E. & ACHKAR, R., 1951.—" Un nuevo tratamiento de la tricocefaliasis." Año 58, 2 (3017), 882–885.

(572b) Carri & Cellerino have mapped and described the approximate distribution in Argentina of *Taenia saginata, Hymenolepis nana, Echinococcus granulosus, Enterobius vermicularis, Trichuris trichiura, Ascaris lumbricoides, Ancylostoma duodenale* and *Necator americanus*. P.M.B.

(572d) [This paper is reprinted from *Rev. Kuba Med. trop. Parasit.*, 1951, 7, 57–59. For abstract see No. 554a above.]

573—Sewage and Industrial Wastes.

a. RUDOLFS, W., FALK, L. L. & RAGOTZKIE, R. A., 1951.—" Contamination of vegetables grown in polluted soil. III. Field studies on *Ascaris* eggs." 23 (5), 656–660.

(573a) Lettuce and tomato plants do not within a month become free from *Ascaris lumbricoides* var. *suum* eggs sprayed on the plants as a thin suspension of faeces, although there is a gradual reduction in numbers. Undeveloped eggs never reached the infective stage and all eggs were degenerate or incapable of development by the 27th day. The experiments were carried out during a hot dry summer and desiccation is known to be one of the greatest lethal factors to these eggs. R.T.L.

574—South African Medical Journal.

a. LURIE, H. I. & DE MEILLON, B., 1951.—" Skin tests for schistosomiasis." 25 (19), 321–324.
b. ANNECKE, S. & PEACOCK, P. N. B., 1951.—" Bilharziasis in the Transvaal." 25 (37), 676–680; (38), 689–692.
c. ANON., 1951.—" Tenamid : a new anthelmintic." 25 (38), 687.
d. HEINZ, H. J., 1951.—" The ova of *Enterobius vermicularis*. A method of collection for routine examinations." 25 (49), 915.

(574a) The literature on skin tests for schistosomiasis is summarized. The results obtained with antigens prepared from *Fasciola hepatica*, hydatid, Ascaris and *Taenia*

saginata are tabulated and indicate the existence of a common antigenic: 97% of the cases passing eggs gave positive reactions with the Fasciola antigen and one case of Onchocerca infection gave a false positive reaction. Many young schoolchildren between the ages of six and eight years and with eggs in the urine gave false negative reactions, although adults proved positive. Both the dried and diluted antigen stored in a refrigerator lost their potency within four years. The preparation of a schistosome cercarial antigen is also described. Of 28 cases passing eggs, 26 gave positive reactions and two were doubtful. In only one out of ten cases with other helminth infections was there a false positive reaction. A batch of this antigen kept in the refrigerator for three years and another kept at room temperature for six months showed no loss of potency. R.T.L.

(574b) Schistosomiasis haematobia occurs in varying degrees of severity in northern and eastern Transvaal, an area of over 60,000 square miles. Its distribution, which is mapped, corresponds with that of *Physopsis africana*. No evidence of infection was obtained in *Bulinus tropicus*, *Pyrgophysa forskali* or *Limnaea natalensis*. *Physopsis africana* showed a definite preference for streams, canals etc. with a heavy plant growth and for the lower, wetter regions where schistosomiasis was most prevalent. During the rainy months, November to March, large numbers of *B. tropicus* and *P. africana* are present in the grass pans so characteristic of north Transvaal. Most of these dry up and remain dry for many months, but the snails by sealing their openings with epiphragms made largely of mud can aestivate for as long as 18 months, although apparently *Planorbis* does not do so. Experiments with the newer molluscicides did not give results superior to copper sulphate, although its instability when diluted in river water is very marked. Examinations of native schoolchildren showed an incidence of schistosome infection varying from 4% to 88%. The highest incidence was in the low-lying country east of the Drakensberg Mountains. In European schoolchildren the infection rate ranged from 3% to 17%. R.T.L.

(574c) It is stated that "Tenamid" (β-phenyl-β-carboxy-(3,5-diiodo-4-hydroxyphenyl) ethane) is effective against a large number of intestinal helminths, including the common tapeworms. No special diet or purgatives are necessary before treatment and it is claimed that there are no side effects. S.W.

(574d) Heinz gives a brief outline of the known life-cycle of *Enterobius vermicularis* and recommends the routine use of the Scotch cellulose tape technique. When the ova have been collected on the sticky surface, the cellulose tape is spread, with the adhesive side down, on a labelled microscopical slide. R.T.L.

575—South-Eastern Naturalist and Antiquary.

a. MANSON-BAHR, P., 1951.—"Some contributions of zoology to medical science." 56, 46–55.

576—Sovetskaya Meditsina.

a. BUSLAEV, M. A., 1951.—[Measures for control of malaria and helminthiasis in USSR.] Year 1951, No. 8, pp. 34–35. [In Russian.]

(576a) Buslaev reports a meeting held in the Russian Ministry of Health where plans were discussed to reduce helminthic infestations, particularly ascariasis, taeniasis and ancylostomiasis. C.R.

577—Stain Technology.

a. SMYTH, J. D., 1951.—"Specific staining of egg-shell material in trematodes and cestodes." 26 (4), 255–256.
b. RUBIN, R., 1951.—"A rapid method for making permanent mounts of nematodes." 26 (4), 257–260.

(577a) Smyth describes in detail the staining technique by means of which he demonstrated the formation of egg shells in trematodes and pseudophyllidean cestodes. The

material is fixed in 0·5% formol saline for two hours and embedded in paraffin; sections are brought down to water and stained in aqueous 0·5% malachite green for two minutes or methyl green pyronin for five to ten minutes, dehydrated, differentiated in absolute alcohol if necessary, stained for one second in 1% orange G in absolute alcohol, rinsed, cleared in xylene and mounted in balsam. Nuclear counterstaining is unnecessary but if desired Gower's carmine or 1% alcoholic safranin can be used before staining with methyl or malachite green. [See also Helm. Abs., **20**, No. 254a.] S.W.

(577b) Rubin finds that nematodes can be cleared and permanently mounted with excellent results in a mixture of polyvinyl alcohol, phenol and lactic acid in the proportions 56 parts of polyvinyl alcohol solution (15 gm. in 100 ml. distilled water) to 22 parts of phenol and 22 parts of lactic acid. Nematodes and eggs can be transferred directly to this from 10% formalin, water, alcohol or glycerin alcohol. Slides should be examined daily for the first week and at intervals for about a month in order that more medium can be added if necessary. The only disadvantage appears to be that small nematodes may clear too much after some months but Rubin is of the opinion that this may be overcome by varying the proportions of the ingredients. S.W.

578—Technische Berichten. Peulvruchten Studie Combinatie. Wageningen.

a. BOM, G. J., 1951.—"Het Erwtencystenaaltje." No. 56, 7 pp.

(578a) In the summer of 1949 an investigation was started to find pea varieties resistant to "St. John's Disease", common in the Zeeland islands and then thought to be due to a race of *Fusarium oxysporum*. It was then found and has been since confirmed that all plants showing symptoms of this disease were in fact infested with *Heterodera göttingiana*. Bom gives a brief account of the eelworm and emphasizes the difficulty of controlling it. No pea varieties are resistant, and the yield of peas may be reduced to 50% or less. The disease shows itself as one or more sharply defined patches of stunted plants of a yellower green than surrounding healthy plants. B.G.P.

579—Terapevticheski Arkhiv.

a. LEBEDINSKAYA, M. M., 1951.—[Demonstration of a patient with duodenal ancylostomiasis.] **23** (3), 97–98. [In Russian.]

580—Texas Journal of Science.

a. CHITWOOD, B. G., 1951.—"North American marine nematodes." 3 (4), 617–672.

(580a) Chitwood gives a brief general account of free-living nematodes and their classification. He outlines the techniques used in the collection of the specimens described in this paper together with methods of mounting, measuring, etc. A total of 43 species are recorded from Rockport, Texas, among which are representatives of five new subfamilies, three new genera, thirty new species, one new combination and one new variety. There is a detailed key and numerous illustrations. In an addendum, Chitwood compares these records with those of Allgén (1947) and lists those species reported by Allgén from American waters. S.W.

581—Tidsskrift for Planteavl.

a. BOVIEN, P., 1951.—"Plantesygdomme i Danmark 1949. 7. Skadedyr på landbrugsplanter. 8. Skadedyr på havebrugsplanter." **55** (1), 37–51. [English summary pp. 73–81.]

(581a) *Heterodera major* has been reported as a serious pest in oats in Denmark, but barley and wheat are also heavily attacked. In one or two instances rye suffered as a result of this infection. *Ditylenchus dipsaci* has been found in red clover, white clover and lucerne. It is very common in red clover in some districts. Alsike clover is highly susceptible to attacks of the white clover nematode and also to some extent to the red clover nematode.

Melilotus leucantha could be infected by the lucerne nematode. One destructive attack by the beet nematode (*Heterodera schachtii*) has been reported together with several moderate attacks. The potato tuber nematode (*Ditylenchus destructor*) was reported for the first time in 1949. The strawberry nematode (*Aphelenchoides* sp.) has been found at several places. S.B.

582—Tierärztliche Umschau.

a. BEHRENS, H., 1951.—"Die Behandlung des Lungenwurmbefalles der Schafe mit Merckojod." **6** (21/22), 394–397.
b. ULLRICH, K., 1951.—"Betrachtungen zur Dosierung und Toxizität des Oleum Chenopodii beim Hunde." **6** (23/24), 440–443.
c. SPREHN, C., 1951.—"Befall mit dem Knötchenwurm *Oesophagostomum dentatum* Rud. (Nematoda) als häufige Ursache des Ferkelsterbens in einem mittelfränkischen Bezirk." **6** (23/24), 443–445.

(582a) Following tests on approximately 3,000 sheep, Behrens recommends intratracheal injections of "Merckojod", a colloidal iodine compound, for the treatment of lungworms in sheep. The condition of the animals greatly improved and the faeces became negative for *Dictyocaulus filaria* after injections of a 2% suspension in boiled water cooled to a temperature of 30°C., repeated once or twice if necessary after an interval of 8–14 days. The dosages recommended are: lambs 3–8 c.c., yearlings 12 c.c. and fully-grown sheep 15 c.c., reduced for animals in very poor condition. The results were somewhat less satisfactory against *Synthetocaulus* and were not improved when a stronger solution was used. Behrens recommends that sheep should be kept in on the day of treatment and should not be driven too far on the following day. Side effects were not serious. P.M.B.

(582b) After many years' experience, involving the treatment of over 1,000 dogs, Ullrich considers that oil of chenopodium is the outstanding remedy for roundworms in dogs. The toxic effects reported by some workers are completely eliminated when dosage is carefully regulated according to age, size and condition and when the drug is followed by a dose of castor oil. By dissolving the chenopodium oil in paraffin oil or by adsorbing it on animal charcoal, the toxicity can be reduced still further. Examples are given of doses for dogs of various ages and breeds. One-third of the dose is given at 7, 8 and 9 a.m. respectively, followed at 9.30 a.m. by castor oil. Capsules are not considered to give a sufficiently accurate dosage, especially for puppies. P.M.B.

(582c) Sprehn reports that of 78 herds of pigs examined by him in the year April 1950—March 1951 because of deaths among young pigs, 38 (48·72%) were found to be infected with *Oesophagostomum dentatum*, 10 (12·82%) with *Strongyloides ransomi*, 9 (11·53%) with *Ascaris lumbricoides*, and one (1·28%) with Eimeria: in other cases infections were non-parasitic. Sprehn gives an account of the life-history of *O. dentatum* and describes the pathology of the infection. He recommends treatment with phenothiazine (0·5 gm. per kg. body-weight, the total dose being spread over 4 days) and suggests concurrent administration of Yatren vaccine (E. 104) to the young pigs. Pig sties should be washed out with boiling water containing soda. A.E.F.

583—Tijdschrift voor Diergeneeskunde.

a. DORSSEN, C. A. VAN, 1951.—"Overzicht der onderzoekingen van het uit de praktijk ingezonden ziektemateriaal over het jaar 1950." **76** (19), 727–734.
b. GILS, J. H. J. VAN, 1951.—"Acuut longemphyseem bij het rund (een pathologisch-anatomische studie)." **76** (22), 833–839. [English, French & German summaries pp. 836–839.]

(583a) Van Dorssen, in a report dealing with the diagnosis of diseased conditions encountered in animals submitted for examination by veterinary practitioners in Holland, mentions the presence of several common helminths in pigeons, ducks, geese, chickens, rabbits and sheep. *Syngamus trachea* was recovered from a magpie. P.L.leR.

(583b) This article is an abstract by Dr. van Gils of his thesis in which he describes chronic histopathological lesions observed in the lungs of cattle affected with acute lung emphysema. He suggests that the chronic changes predispose the affected animals to acute lung emphysema when they are grazed on luxuriantly growing aftermath and autumn pastures. The emphysema of the lung is accompanied by a marked oedema and the stricken animals die of asphyxiation. He suggests that further investigations should be undertaken to ascertain whether the chronic pulmonary lesions observed in adult animals are due to lungworm infections in early life. P.L.leR.

584—Trabajos del Instituto de Ciencias Naturales "José de Acosta". Serie Biológica. Madrid.

a. ALVARADO, R., 1951.—" El tegumento, la musculatura y el parénquima de *Fasciola hepatica*. (Contribución al problema de la morfología de los tremátodos)." 3 (1), 1–90. [English summary pp. 79–81.]

(584a) In this monograph, Alvarado gives a detailed account of his researches into the nature of the integument, musculature and parenchyma of *Fasciola hepatica* as a contribution to our knowledge of trematode morphology. He rejects Bloch's theory which supposes that the ectodermal epithelium is sunk in the parenchyma and considers the "large cells" of trematodes to be ganglion cells, not myoblasts. He regards the so-called parenchyma as a mere topographical region and not a morphological unit. The parenchyma of trematodes is formed fundamentally by the cellular bodies of the somatopleural and splancnopleural layers between which the free mesenchymatical cells tend to aggregate. There are 47 photomicrographs. R.T.L.

585—Transactions of the American Microscopical Society.

a. KAGAN, I. G., 1951.—" Aspects in the life history of *Neoleucochloridium problematicum* (Magath, 1920) new comb. and *Leucochloridium cyanocittae* McIntosh, 1932 (Trematoda : Brachylaemidae)." 70 (4), 281–318.

b. ULMER, M. J., 1951.—" *Postharmostomum helicis* (Leidy, 1847) Robinson 1949, (Trematoda), its life history and a revision of the subfamily Brachylaeminae. Part II." 70 (4), 319–347.

c. SPARKS, A. K., 1951.—" Some helminth parasites of the largemouth bass in Texas." 70 (4), 351–358.

d. MARTIN, W. E. & GREGORY, V. L., 1951.—" *Cercaria buchanani* n.sp., an aggregating marine trematode." 70 (4), 359–362.

(585a) Kagan describes the adult, cercaria and metacercaria of *Leucochloridium problematicum* which he transfers to *Neoleucochloridium* n.g. characterized by an intracaecal uterus and pustulated cirrus. *L. sorae* is shown to be a synonym of *L. problematicum*. The genus *Leucochloridium* is considered to be a complex of *Leucochloridium, Neoleucochloridium* and *Urogonimus*. Of the 22 sporocysts of Leucochloridiinae adequately described in the literature, 21 are accepted as distinct species; seven of these occur in Europe, ten in the New World, two in Australia, one in India and one in China. These sporocysts, with their synonyms, are divided into groups according to the presence or absence of pigment which may be green, brown or red-brown, yellow or orange-yellow. The metacercariae from green brood sacs can be separated from those from red-brown brood sacs on their morphology. A green sporocyst was recovered from a laboratory-reared snail exposed to eggs of *L. cyanocittae*. Red-brown sporocysts develop into *L. sorae*, a synonym of *N. problematicum*. The intermediate hosts in Michigan are *Oxyloma retusa* and *Quickella* sp. The cercariae are tailless and have six pairs of flame cells, three in the anterior and three in the posterior part of the body. The metacercariae attain sexual maturity in five days when fed experimentally to Rallidae and chickens. Leucochloridiinae occurred in 4% of 177 birds representing 42 species collected in south-eastern Michigan. [The author's two abstracts which appeared in *J. Parasit.*, 36, Suppl. pp. 15 and 19 (1950) were abstracted in Helm. Abs., **19, Nos. 337u and 337bh.**] R.T.L.

(585b) Ulmer has continued his work on the Brachylaeminae [for abstract of previous part see Helm. Abs., 20, No. 291a]. *Peromyscus maniculatus* and *Tamias striatus* are among the definitive hosts of *Postharmostomum helicis* of which the unencapsulated metacercaria occurs in *Anguispira alternata* and other terrestrial snails. A partial immunity to hyperinfection develops with the establishment of adult worms. *P. helicis* has no cirrus pouch. Great variations in size and shape occur when specimens are flattened and this has caused much confusion in taxonomy. The miracidium moves erratically owing to the presence of three groups of cilia. It develops in the kidney and liver of *A. alternata* producing mother sporocysts with many branches. Cercariae which develop in daughter sporocysts must enter a second snail of the same or other species to become metacercariae. *P. helicis* is distinguished from an unidentified brachylaemid in the same mollusc by the presence of unciliated excretory tubes, convoluted intestinal crura and the location of its metacercariae in the pericardial chamber of its second intermediate host. The subfamily Brachylaeminae is revised to include *Panopistus* which is transferred from Leucochloridiinae. *Postharmostomum* is redefined. R.T.L.

(585c) Seven species of Trematoda, one of Cestoda, two of Nematoda and one of Acanthocephala were found in the large-mouthed bass, *Huro salmoides*, collected mainly in the eastern counties of Texas. The known county range of each is tabulated. R.T.L.

(585d) A cercaria, described and named *Cercaria buchanani* n.sp., formed clumps or aggregates by wrapping their tails around one another and by exuding an adhesive substance after emerging from the marine snail *Cerithidea californica* collected at Playa del Rey, California. The cercariae developed in sporocysts. R.T.L.

586—Transactions of the British Mycological Society.

a. DUDDINGTON, C. L., 1951.—" Further records of British predacious fungi. II." 34 (2), 194–209.
b. GOODEY, J. B., 1951.—" A new species of hyphomycete attacking the stem eelworm *Ditylenchus dipsaci*." 34 (3), 270–272.
c. DUDDINGTON, C. L., 1951.—" *Dactylella lobata*, predacious on nematodes." 34 (4), 489–491.
d. DUDDINGTON, C. L., 1951.—" Two new predacious hyphomycetes." 34 (4), 598–603.

(586a) Duddington adds to the predacious fungi already reported as new in Britain an account of 14 species including *Dactylaria gracilis* n.sp. Those species which capture nematodes do so (i) by a constricting ring, e.g. *D. gracilis* and *Dactylella heterospora*; (ii) by an adhesive network, e.g. *Dactylaria psychrophila* and *Arthrobotrys conoides*; (iii) by a sticky substance, e.g. *Dactylella asthenopaga* and (iv) by spores adhering to the nematode cuticle, e.g. *Acrostalagmus obovatus, Cephalosporium balanoides, Harposporium oxycoracum, Nematoctonus tylosporus. Spicaria coccospora* was found internally parasitic in a nematode and *Zoopage thamnospira* captured nematodes by a method not stated. [The first part of this work appeared in *Trans. Brit. mycol. Soc.*, 33, 209–214.] R.T.L.

(586b) A garden variety of *Calceolaria integrifolia* was found to be infected with *Ditylenchus dipsaci*, many specimens of which were attacked by a fungus named *Verticillium sphaerosporum* n.sp. The sticky spores adhered to the nematodes. The hyphae which developed penetrated the cuticle and branched as they grew. Assimilative mycelium eventually filled the whole of the nematode body. R.T.L.

(586c) Duddington describes a new species of fungus named *Dactylella lobata* n.sp. The lobed branches of older hyphae stick to nematodes and penetrate their integument. The body contents of an infected eelworm are quickly absorbed and large quantities of oily material are left in the carcass. R.T.L.

(586d) *Arthrobotrys robusta* n.sp. and *Trichothecium cystosporium* n.sp. are two new fungi which capture nematodes by means of adhesive networks. R.T.L.

587—Transactions of the Royal Society of Tropical Medicine and Hygiene.

a. FAIRLEY, N. H., 1951.—" Schistosomiasis and some of its problems." [Presidential Address.] **45** (3), 279–303, 304–306.
b. STANDEN, O. D., 1951.—" Demonstration of life cycle of *Schistosoma mansoni*." **45** (3), 303–304.
c. HAWKING, F. & THURSTON, J. P., 1951.—" The periodicity of microfilariae. I. The distribution of microfilariae in the body." **45** (3), 307–328.
d. HAWKING, F. & THURSTON, J. P., 1951.—" The periodicity of microfilariae. II. The explanation of its production." **45** (3), 329–340.
e. FAINE, S. & HERCUS, C. E., 1951.—" Infections in Rarotonga, Cook Islands." **45** (3), 341–352.
f. AZAR, J. E., TABBARA, R. & PIPKIN, A. C., 1951.—" A report on the intensive treatment of vesical schistosomiasis." **45** (3), 383–388.
g. HOARE, C. A., 1951.—" Emile Brumpt. 1877–1951." [Obituary.] **45** (3), 397–398.

(587a) In this presidential address, Fairley summarizes the many contributions which have been made to our knowledge of schistosomiasis. R.T.L.

(587b) [This demonstration was provided as part of the Presidential Address. See preceding abstract.]

(587c) Hawking & Thurston have studied the nocturnal microfilarial periodicity which occurs in monkeys naturally infected with a species of *Dirofilaria* (unidentified) and with other similar infections, and in dogs infected with *D. repens*. They have ascertained that at post-mortem 80% of the total number of microfilariae in the body are usually located in the lungs and in the blood. In those animals killed during the day there are more microfilariae in the lungs than in those killed at night and the converse holds for the microfilariae in the blood. The accumulation of microfilariae in the lungs during the day amply accounted for their disappearance from the blood at this period. Their presence in the lungs did not cause any significant lesions. That the blood of the left ventricle shortly before or after death contains great numbers of microfilariae is considered to be only an agonal effect. R.T.L.

(587d) The observations and theories of earlier workers on filarial periodicity are critically reviewed. Hawking & Thurston's own investigations led them to the conclusion that the periodic fluctuation in the number of microfilariae in the blood was due to their accumulation in the small vessels of the lungs during the daytime and their liberation at night. There is apparently an active response of the microfilariae to some unknown periodic change in the blood which habitually precedes sleeping and waking. It is suggested that although the lung affords the most favourable site for the microfilariae, they periodically migrate into the peripheral circulation in order to encounter their vectors at the most appropriate time, thus ensuring optimum survival and transmission [a teleological view taught by Manson]. R.T.L.

(587e) Non-periodic filariasis and intestinal helminthiasis were among the commonest infections seen in a health survey of 365 people representing a cross section of the population of Arorangi in the island of Rarotonga in the Cook group. The previously published figures on filarial incidence are stated to be unreliable but 15 persons showed clinical elephantiasis or enlarged lymph nodes attributable to filariasis. The presence of microfilariae in these 365 persons is tabulated. Of the positive cases, 25 were males and 12 were females. The helminth eggs found in 281 faecal specimens were those of *Ascaris* (57%), *Trichuris* (74%), hookworm (38%), *Enterobius* (4%). That the general health was good and hookworm anaemia or disease was rare in spite of this high degree of infection is attributed to the good state of nutrition. Eosinophilia was common and most marked in childhood; its possible relationship to hyperproteinaemia and helminth infection is discussed. R.T.L.

(587f) Azar, Tabbara & Pipkin discuss the electrocardiographic findings in nine cases of vesical schistosomiasis treated intensively by intramuscular injections of 34 ml. of repodral distributed over three injections daily at three-hourly intervals over a period of three days. The changes were limited to the T wave which became lower and sometimes diphasic or inverted. They were all reversible. No abnormal clinical findings could be

associated with these changes. There was no evidence that the intensive treatment resulted in hepatic or renal damage, although such side effects might be expected. They recommend that this method should not be administered to patients with cardio-vascular diseases. R.T.L.

588—University of Wyoming Publications.

a. ALDERSON, L. E., 1951.—" Internal parasites of the elk in Wyoming." [Abstract of thesis.] **16** (1/4), 77–78.
b. LANDRAM, J. F., 1951.—" Internal parasites of the mule deer (*Odocoileus hemionus* subspecies) in Wyoming." [Abstract of thesis.] **16** (1/4), 154.
c. WILKS, N. E., 1951.—" Studies on the biology of the larvae of *Dictyocaulus filaria* (Rudolphi, 1809)." [Abstract of thesis.] **16** (1/4), 269.

(588a) Alderson has investigated the endoparasites of *Cervus canadensis nelsoni* in Wyoming and has attempted to correlate the degree of parasitism with the concentration of the elk on winter feeding grounds. The comparatively low incidence in 1948–1949 is attributed to the fact that the elk had not been aggregated in large numbers on this ground during the two preceding winters. The helminths recorded for the first time in this host in Wyoming were *Orthostrongylus macrotis, Trichuris ovis, Capillaria brevipes, Ostertagia circumcincta, Nematodirus filicollis* and *N. spathiger,* of which the three last named are known to cause serious damage in domestic animals. *Dictyocaulus hadweni* and *Thysanosoma actinioides* were also present. S.W.

(588b) This abstract states that in the original thesis *Ostertagia bellae* n.sp. is described from the mule deer in Wyoming. Other species found in the same host were *Thysanosoma actinioides, Moniezia expansa, Taenia* sp., *Orthostrongylus macrotis,* Oxyuridae sp., *Haemonchus contortus, Ostertagia ostertagi, O. circumcincta, O. trifurcata, Nematodirus abnormalis, N. spathiger* and *Trichostrongylus colubriformis*; of these *O. ostertagi, O. trifurcata, O. bellae* n.sp. and *N. abnormalis* represent new host records. This is the first record of *N. abnormalis* outside North and South Dakota. *M. expansa* and *Nematodirus* sp. may cause scouring in young deer. P.M.B.

(588c) Wilks has studied the morphology of the free-living larvae of *Dictyocaulus filaria* and the effect of salinity, *p*H and temperature on their development. At salt concentrations of 27,500 p.p.m. only 50% of the larvae developed to the third stage, over 30,000 p.p.m. larvae did not reach this stage and over 35,000 p.p.m. severe crenation occurred. At *p*H from 2·2 to 10·8 larvae reached the third stage, but only half did so at *p*H 2·4, 2·5, 10·5, 10·6. Between 5°C. and 39°C. the rate of development varied with the temperature gradient, taking from 21 days to 4 days respectively. Larvae can survive for a short time at 0°C. but not at −18°C. Sodium hypochlorite in concentrations of 75 p.p.m. killed larvae within 24 hours. S.W.

589—Uspekhi Sovremennoi Biologii.

a. MARKOV, G. S., 1951.—[Variability of animal parasites in relation to sex.] **31** (1), 128–143. [In Russian.]
b. GNEZDILOV, V. G., 1951.—[Helminthic and protozoan invasion of the human intestine and the specific interrelation of the parasites.] **31** (2), 287–299. [In Russian.]

(589a) Markov reviews under three headings published papers on the problem of variability of animal parasites in relation to the sex of the host: (i) variability depending on morphological and ecological features of animals of different sex, (ii) variability in the parasitic fauna connected with the physiology of animals of different sex and (iii) social influences in relation to the differences in the parasitic fauna of men and women. C.R.

(589b) From a study of faecal smears treated with iodine and Heidenhain's iron haematoxylin for protozoa and with glycerin for helminths, Gnezdilov has sought to establish a specific relationship between the incidence of *Giardia* and that of various intestinal helminths. He found that *Giardia* occurred more commonly in the presence of tapeworms than either in the presence or absence of nematodes. *Giardia* was present in 25·8% of 151 persons with *Hymenolepis nana*, in 22·9% of 35 persons with *Diphyllobothrium latum* and in 11·1% of 60 persons with Taenia, whereas it occurred in only two out of 251 cases of hookworm, in 6·1% of 2,170 persons with Ascaris and in 10·7% of 5,570 persons without Ascaris. No *Giardia* infection was found in 192 cases with both Ascaris and hookworm. C.R.

590—Vestnik Oto-Rino-Laringologii.

a. KOTS, Y. L., 1951.—[Occurrence of leeches in the upper respiratory tract and oesophagus and methods of extraction.] Year 1951, No. 3, pp. 19–24. [In Russian.]
b. SHULYAK, A. M., 1951.—[Cases of echinococcosis in otolaryngology.] Year 1951, No. 4, pp. 81–84. [In Russian.]

(590a) Kots reports 147 cases of *Limnatis nilotica* in man; their incidence was as follows: 32 in the nose and naso-pharynx, 44 in the mouth and pharynx, 2 in the oesophagus, 52 in the larynx, 15 in the trachea and 2 in the bronchi. He describes methods for their extraction from these sites. C.R.

591—Veterinariya.

a. KLESOV, M. D., 1951.—[Biology of nematodes of the genus *Thelazia* Bosc, 1819.] **28** (2), 22–25. [In Russian.]
b. ANON., 1951.—[Helminths must be controlled.] [Editorial.] **28** (4), 3–5. [In Russian.]
c. NOSIK, A. F., 1951.—[Biological control of snails.] **28** (4), 16–19. [In Russian.]
d. PODBEREZSKI, K. N., 1951.—[Paramphistomiasis in calves.] **28** (4), 20–21. [In Russian.]
e. KULINICH, V. G., 1951.—[Treatment of ascariasis in pigs.] **28** (4), 22–23. [In Russian.]
f. MOLEV, E. V., 1951.—[Ecology of the midges—*Culicoides*, intermediate hosts of Onchocerca of horses.] **28** (4), 24–26. [In Russian.]
g. KRASTIN, N. I., 1951.—[The biology and ecology of *Musca convexifrons*.] **28** (4), 26–28. [In Russian.]
h. GADZHIEV, K. S., 1951.—[Neoascariasis in buffaloes.] [Abstract.] **28** (4), 28. [In Russian.]
i. GADZHIEV, K. S., 1951.—[The action of phenothiazine on low-conditioned pregnant sheep.] [Abstract.] **28** (4), 28–29. [In Russian.]
j. GADZHIEV, K. S., 1951.—[Comparative estimation of the helminthocoprological methods in examining faeces for fascioliasis.] [Abstract.] **28** (4), 29. [In Russian.]
k. NIKULIN, T. G., 1951.—[Therapy of muelleriasis in goats.] [Abstract.] **28** (4), 29–30. [In Russian.]
l. NAZAROV, G. S., GURYANOVA, M. P. & DULEBOV, A. E, 1951.—[Anthelmintic action of sulphur in ascariasis and uncinariasis of dogs.] [Abstract.] **28** (4), 30. [In Russian.]
m. GRIGORYAN, G. A. & SVADZHYAN, P. K., 1951.—[Treatment of dicrocoeliasis in sheep with hexachlorethane-bentonite suspension.] [Abstract.] **28** (4), 30. [In Russian.]
n. GOLOSNITSKI, A. K. & KHOLOSHCHANOV, V. A., 1951.—[The method of administering phenothiazine in the mass treatment of sheep.] [Abstract.] **28** (4), 30–31. [In Russian.]
o. AKHUMYAN, K. S. & OGANYAN, M. G., 1951.—[A new simplified method of treating domestic birds with carbon tetrachloride.] [Abstract.] **28** (4), 31. [In Russian.]
p. DUBOVOI, F. I., 1951.—[Use of a naso-pharyngeal tube for the treatment of sheep and calves against monieziasis.] [Abstract.] **28** (4), 31. [In Russian.]
q. ANTIPIN, D. N., 1951.—[Annual Conference of the Soviet All-Union Helminthological Society, December 22–27, 1950.] **28** (4), 52–57. [In Russian.]

(591a) [This paper is similar in substance to those published by the author in *Dokl. Akad. Nauk SSSR.*, 1949, **66** (2), 309–311, and 1950, **75** (4), 591–594. For abstracts see Helm. Abs., **18**, No. 190g; **19**, No. 308i.]

(591b) In this editorial stress is put on the need in the Soviet Union for the reduction of helminth infestations to a minimum. Particular mention is made of dictyocauliasis and fascioliasis in sheep and cattle, monieziasis in sheep, goats and calves, ascariasis and metastrongylosis in pigs. C.R.

(591c) Nosik found that in the district where Fasciola occurs, ducks and geese were very useful in destroying *Limnaea truncatula* and he recommends this method of biological control. C.R.

(591d) Podberezski reports the occurrence of Paramphistomum in calves and describes the symptoms, lesions found post mortem and differential diagnosis. He found the flukes in the mucosa of the rumen and duodenum, in the submucosa of the duodenum, in the bile ducts, in the gall-bladder, in the pelvis of the kidney, in the abdominal fluid and in the large intestine. There was a great mortality among the calves and the treatment was mainly symptomatic. C.R.

(591e) Kulinich reports good results obtained in the treatment of pigs with sodium fluoride against *Ascaris lumbricoides*. The dose was 0·1–0·11 gm. per kg. body-weight. He recommends a second dose 15 days later. C.R.

(591f) This paper by Molev is mainly concerned with the bionomics of midges. He mentions in passing that microfilariae of Onchocerca were found in *Culicoides obsoletus* and in *C. stigma*. C.R.

(591g) Krastin describes the life-history of *Musca convexifrons*, the intermediate host of *Thelazia rhodesii*, and discusses how knowledge of its biology can help in its control and thus reduce the incidence of Thelazia. C.R.

(591h) Gadzhiev reports the occurrence of *Neoascaris vitulorum* in 41·8% of buffaloes up to five months old, while older animals were free from this parasite. He used for their treatment hexachlorethane in doses of 0·4 gm. per kg. body-weight. Food was withheld for 40 hours before treatment and the mass expulsion of worms followed three to four days later. C.R.

(591i) Gadzhiev used phenothiazine in pregnant sheep (during the second half of pregnancy) in doses of 0·5 gm. per kg. body-weight, given as a bolus with barley flour. The sheep were in poor condition and three days later seven aborted. He also found a great reduction in the number of red blood corpuscles and haemoglobin level, and that phenothiazine was very effective against Haemonchus. C.R.

(591j) Gadzhiev found that of the three methods used for faecal examination for Fasciola, viz., Telemann, centrifugation and sedimentation, the best was the Telemann method. He also found that the incidence in sheep is two and a half times greater than that in goats. In his opinion this is because goats eat the tops of the grass only. C.R.

(591k) Nikulin used a 1% solution of emetine in a dose of 0·003 gm. per kg. body-weight in two of his three groups of goats infected with Muellerius. The first group (5 goats) received the drug subcutaneously while the second group (5 goats) received the drug intramuscularly three times at 2-day intervals. The 3rd group (20 goats) received two doses of a 2% solution of emetine intramuscularly with a 2-day interval between doses. In the first two groups, eight animals out of the ten were free from larvae in the faeces. Treatment in the third group was 100% effective. C.R.

(591l) Nazarov *et al.* used sulphur at the rate of 1 gm. per kg. body-weight in the treatment of ascariasis and uncinariasis of 28 dogs. An hour later, Glauber's salt (1 gm. per kg. body-weight but not more than 25 gm.) was given. On the second day only sulphur was given, and on the third day the first day's treatment was repeated. The first worms were passed three to four days after the first dose of sulphur. On the seventh to tenth day, faecal examination showed the dogs to be free from infection. C.R.

(591m) Grigoryan & Svadzhyan used hexachlorethane-bentonite suspension against Dicrocoelium infection in eight sheep. Dose rates were from 25 c.c. to 30 c.c. (12·5–15 gm. of hexachlorethane). They found that on the fourth day there was a supression of oviposition but this returned to normal on the 15th day. C.R.

(591n) Golosnitski & Kholoshchanov found that to ensure a lasting suspension of phenothiazine the best results were obtained when a soap-paraffin emulsion was used. The exact method of preparation is described. C.R.

(591o) Akhumyan & Oganyan consider that the best method of treatment of domestic birds with carbon tetrachloride is by administering it in a 1 gm. dose in gelatin capsules, without any instrument for the purpose. C.R.

(591p) For the treatment of sheep with a 1% solution of copper sulphate, Dubovoi employs a rubber tube 75 cm. long and 6 mm. in diameter connected at one end to a 20 c.c. record syringe. The other end is introduced through the nose into the oesophagus. A Glauber's salt solution was introduced one to three hours later by the same method. For calves, the author uses a larger tube. C.R.

(591q) Antipin, in his report of the Annual Conference of the Soviet Helminthological Society held in December 1950, gives short summaries of the 46 papers read by the members under the following main headings: (i) problems of control of the more important helminths of domestic animals; (ii) anthelmintic treatment of domestic animals; (iii) problems of biology, epizootology and prevention of helminths; (iv) problems of pathogenesis and pathology of helminths; (v) incidence of helminths in domestic and fur-bearing animals; (vi) diagnosis of helminths; (vii) biochemistry and toxicology of helminths. C.R.

592—Veterinarski Arhiv.

a. DREZANČIĆ, I., 1951.—"Novi način liječenja pasa od askarida." 21 (9/10), 416–420. [English summary p. 420.]

(592a) When given to dogs through a duodenal tube after fasting for 24 hours, carbon tetrachloride followed five to eight minutes later by Epsom salt, 10 gm. per 5 kg. bodyweight, in a 50% solution of lukewarm water removed all tapeworms and roundworms. R.T.L.

593—Veterinary Record.

a. TAYLOR, E. L., 1951.—"Parasitic bronchitis in cattle." 63 (51), 859–867. [Discussion pp. 867–873.]

b. LEIPER, J. W. G., 1951.—"A new approach to phenothiazine therapy in sheep." 63 (52), 885–889.

(593a) Parasitic bronchitis shows important differences in young and in adult animals. In the former typical symptoms are due to the irritation caused by adult *Dictyocaulus viviparus* in the smaller bronchioles. In the latter, symptoms of husk may be present in the absence of adult worms or of eggs in the faeces, but in the mucus scraped from the terminal tubes large numbers of microscopic worms can be found. These may number 1,000 and may remain undeveloped in the lung for at least ten weeks. The helminthological significance of these observations is discussed and related to the inhibition of development of helminths in other domestic animals. It is concluded that the lung tissues of a bovine which has been infected by *D. viviparus* acquire a specific sensitivity and respond to the larvae by an irritable reaction which does not occur in the susceptible animal. Further investigations may show that the cough is a response to the larvae and not to the adults. Kotlán's "histotrophic phase" can appropriately be used in this connection. R.T.L.

(593b) Better response to phenothiazine has been obtained by farmers who have dosed the whole of their flock, than by research workers who have left part of the flock untreated as a control. This difference is due to the grazing of the controls and the treated animals on the same infected plot, so that both groups have the same opportunity of reinfection and the effect of treatment is therefore soon obscured. The "spring rise" to which several writers have drawn attention is attributed to infection of the lambs when they are beginning to graze and are at the most susceptible period of their life. Experiments are described which show that the infection of the pastures in the spring was reduced, and the "spring rise" prevented when the ewes were given 30 gm. of phenothiazine 10 days before lambing, and the treatment continued by adding 1 gm. of phenothiazine per ewe to the daily allowance of 1 lb. of a concentrate mixture for five weeks, followed by 1·5 gm. for four weeks. When 5½ months old the lambs from the treated ewes had gained an average of 7 lb. more than those from the untreated ewes. R.T.L.

594—Vie et Milieu. Paris.

a. DEBOUTTEVILLE, C. D. & THÉODORIDÈS, J., 1951.—"Sur la constance de l'association entre nématodes phorétiques et collemboles cavernicoles." 2 (1), 50–55.
b. CHABAUD, A. G., 1951.—"Remarque sur le cycle évolutif des *Synhimantus* (Nematoda) parasites de rapaces." 2 (2), 278.
c. DOLLFUS, R. P., 1951.—"La larve métacercaire d'*Aphallus tubarium* (Rudolphi 1819) enkystée chez *Gobius* (*Zostericola*) *ophiocephalus* P. S. Pallas." 2 (3), 350–360.

(594a) Debouteville & Théodoridès report the finding of phoretic nematodes, identified by Sachs as *Cheilobus quadrilabiatus*, attached to the body, head and legs of four species of cave-living Collembola, *Tomocerus brevimucronatus*, *Typhlogastrura balazuci*, *Onychiurus fimetarius* and *Heteromurus nitidis*, collected respectively from the Jura, Ardèche, and from Nave Brescia and Latium in Italy. P.M.B.

(594b) Chabaud reports the finding of spirurid larvae, which he identifies as the third-stage larvae of *Synhimantus laticeps*, encapsulated in the gastric wall or peritoneum of *Tarentola mauritanica* at Banyuls, Pyrénées Orientales. It is probable that the first intermediate host is an arthropod. P.M.B.

(594c) The metacercaria of *Aphallus tubarium* which has now been identified encysted in *Gobius* (*Zostericola*) *ophiocephalus* is described and illustrated. The affinities of *Apophallus* in the Cryptogonimidae are discussed. R.T.L.

595—Vlaamsch Diergeneeskundig Tijdschrift.

a. THOONEN, J. & VERCRUYSSE, R., 1951.—"De rode maagworm, *Hyostrongylus rubidus* (Hassall en Stiles 1892) Hall 1921 bij het varken." 20 (7/8), 139–144. [English, French & German summaries p. 144.]

(595a) Thoonen & Vercruysse record the first case of *Hyostrongylus rubidus* infection in a pig bred in Belgium. They describe the post-mortem findings and give an account of the life-history of the parasite. Treatment with phenothiazine is recommended, preceded by measures to remove excess mucus from the stomach. A.E.F.

596—Wiener Medizinische Wochenschrift.

a. HARTL, H., 1951.—"Inkompletter Papillenverschluss durch toten Askaris." 101 (39), 749–750.

(596a) Hartl records a case of occlusion of the common bile duct in a 59-year-old woman, caused by the presence of an Ascaris in the duodenal papilla. The worm, which was 21 cm. in length, was removed surgically and there was complete recovery and disappearance of symptoms. A.E.F.

597—Wiener Tierärztliche Monatsschrift.

a. GEBAUER, O., 1951.—"Ein Beitrag zum Thema Rinderfinne und zum sogenannten Aufbrüsteln der Kälber." 38 (9), 578–580. [English, French & Italian summaries p. 580.]

(597a) At the slaughterhouse at Leoben, Austria during 1950, 22 out of 1,826 cattle were found to be infected with *Cysticercus bovis*, and during 4 months of 1951 cysticerci were found in 4 calf carcasses (0·25%). Gebauer suggests that the latter should not be passed at meat inspection unless the brisket has been opened. P.M.B.

598—Wiener Zeitschrift für Innere Medizin.

a. ROTBARD, N., 1951.—"Anreicherungsmethode von Zysten und Wurmeiern nach Faust." 32 (2), 72–73.

(598a) This is a description of Faust's technique for the concentration of helminth ova in faeces, with a few comments on its value. P.M.B.

599—World Health Organization. Technical Report Series.

a. ANON., 1951.—"Joint WHO/FAO Expert Group on Zoonoses. Report on 1st Session, Geneva, December 11–16, 1950." No. 40, 48 pp.

(599a) Following the resolution on hydatidosis of the Third World Health Assembly which requested the Director General, in co-operation with other specialized agencies and organizations whenever possible, to lend technical assistance for its eradication or for research, upon request of government authorities, the subject was considered by the Joint WHO/FAO Expert Group on Zoonoses. In its report it is pointed out that although the disease is most often transmitted to man directly from the dog, indirect transmission via food stuffs and other contaminated materials is a real danger. Anti-hydatidosis programmes should include (i) anthelmintic treatment, (ii) stray-dog elimination, (iii) prophylactic measures against canine reinfection, (iv) reduction of wild canines, e.g. wolves, jackals and foxes in enzootic areas. Improved practices of slaughtering livestock and appropriate methods of offal disposal are the keystone of hydatidosis eradication. The expert group on Zoonoses also drew attention to the need for clarification of the role of animals, particularly of dogs, as reservoirs of schistosomiasis and considered that an evaluation of the various methods used for the control of trichinosis would be highly useful. The possibility of control of hydatidosis, trichinosis and schistosomiasis by international regulation warrants further study. Annexe 1 of the report includes a list of helminth diseases "naturally transmitted between vertebrate animals and man". Annexe 10 outlines a system used in Argentina and southern Brazil for the mass treatment of dogs for echinococcosis. R.T.L.

600—Yokohama Medical Bulletin.

a. MATSUSAKI, G., 1951.—"Studies on the life history of the hookworm. Part VII: On the development of *Ancylostoma caninum* in the abnormal host." 2 (3), 154–160.

(600a) Rats were submitted experimentally to oral infection by larvae of *Ancylostoma caninum*. In this abnormal host the larvae penetrated the wall of the stomach or small intestine, reached the liver and lungs and after passing up the trachea, larynx and pharynx, 57% of the larvae were found in the muscles about the larynx and trachea. The muscle invasion was completed about ten days after infection. The larvae survived as long as 377 days. Where the infection was cutaneous the infective larvae migrated immediately into the muscles of the head, neck, breast and limbs without entering the lungs, liver or other organs. R.T.L.

601—Zeitschrift für Hygienische Zoologie und Schädlingsbekämpfung.

a. ERHARDT, A., 1951.—"Vergleichende Untersuchungen über den Helminthenbefall von Deutschen, Turkestanern und Armeniern auf dem Balkan." 39 (1), 1–5.

(601a) Erhardt tabulates the results of examinations for helminth infections carried out during 1943–44 on (i) 434 German soldiers in Athens, (ii) 230 Turkestanians at Salonika and (iii) 153 Armenians at Valona (Albania). Totals with helminth infections were (i) 54 (12·4%), (ii) 96 (41·7%), (iii) 131 (84·3%). Figures (with percentages) for infections with individual parasites were as follows: *Ascaris lumbricoides*, (i) 10 (2·9%), (ii) 51 (22·2%), (iii) 82 (53·6%); *Trichuris trichiura*, (i) 44 (10·4%), (ii) 58 (25·2%), (iii) 96 (64·1%); Hookworm, (i) nil, (ii) 1 (0·4%), (iii) 2 (1·3%); *Taenia saginata*, (i) nil, (ii) 3 (1·3%), (iii) 8 (5·2%); *T. solium*, not found in any group; *Hymenolepis nana*, (i) 2 (0·5%), (ii) nil, (iii) 4 (2·6%). Figures given for Enterobius are of no value since no special examinations were made for this parasite. A.E.F.

602—Zeitschrift für Immunitätsforschung und Experimentelle Therapie.

a. WERLE, E. & RINGLER, W., 1951.—"Über die Wirkung des Cölomsaftes von Askariden nach intravenöser Injektion beim Hund." 109 (1), 60–65.

(602a) Werle & Ringler report that intravenous injection of *Ascaris lumbricoides* body fluid in quantities as small as 0·65 c.mm. per kg. body-weight will produce fatal anaphylactic shock in dogs infected with ascarids or cestodes. They discuss the nature of the reaction and of the effective substances involved. A.E.F.

603—Zeitschrift für Parasitenkunde.

a. KLOFT, W., 1951.—"Pathologische Untersuchungen an einem Wespenweibchen, infiziert durch einen Gordioiden (Nematomorpha)." 15 (2), 134–147.
b. REICHENBACH-KLINKE, H. H., 1951.—"Eine neue Art der Trematodengattung *Diplozoon* v. Nordmann." 15 (2), 148–154.

(603a) Kloft records a case of parasitism of a *Vespa germanica* female by a member of the family Chordodidae [no generic or specific diagnosis was made]. This is believed to be the first record of gordiacean infection in a member of the Hymenoptera. The pathology of the infection is described in detail. A.E.F.

(603b) Reichenbach-Klinke describes and illustrates *Diplozoon barbi* n.sp. from the gills of a specimen of "Barbus schubert" (a name given in the U.S.A. to a variety of *Barbus semifasciolatus*) imported to Germany from North America. The new species is differentiated from *D. paradoxum*, the only other member of the genus. A.E.F.

604—Zeitschrift für Tropenmedizin und Parasitologie.

a. KOCH, K. R. & KUX, P., 1951.—"Die Verträglichkeit von Miracil D bei der Schistosomiasis mansoni in Brasilien." 3 (1), 94–100. [English & Spanish summaries pp. 99–100.]
b. HUECK, O., 1951.—"Fuadinwirkung bei *Opisthorchis sinensis*." 3 (1), 100–102. [English summary p. 102.]
c. MINNING, W. & DING, P. C., 1951.—"Hetrazan-Wirkung bei Mäusetrichinose." 3 (1), 103–108. [English summary p. 108.]
d. MAINZER, F., 1951.—"Ein Beitrag zur Geschichte der Lungenbilharziase: eine Arbeit Dr. Belleli's aus dem Jahre 1885." 3 (2), 234–243. [English summary pp. 240–242.]
e. KOURÍ, P. & KOURÍ, J., 1951.—"Diskussionen um *Inermicapsifer cubensis* (Kouri 1938)." 3 (2), 243–253. [English summary p. 252.]

(604a) The toxic symptoms which followed the administration of daily doses of miracil-D commencing with 0·6 gm. or more, were of such intensity that a course of five days' treatment of cases of schistosomiasis mansoni could not be completed. The authors

recommend one tablet on the first day, increasing this by one tablet daily until the maximum dose is reached. This maximum is maintained for some days and then decreased by one tablet daily. The patient receives a total of up to 6 gm. according to body-weight. R.T.L.

(604b) Hueck reports that between the years 1940 and 1949, the faeces of 22 out of 30 cases with *Clonorchis sinensis* who were treated with 8 to 15 injections of fouadin at the Tungkun hospital, Kwangtung province, China, were subsequently negative. P.M.B.

(604c) Hetrazan was given in doses of 300 mg. and 600 mg. per kg. body-weight respectively thrice daily for five days to two groups of mice 24 hours after they had each been infected with 100 Trichinella larvae. When killed 24 hours after the last dose they showed fewer intestinal Trichinella than the controls. In a third group in which treatment began six days after infection, the reduction was less evident. No conclusions could be drawn from examination of the intestine and muscles of a fourth group treated as in the first group but killed 36 days later. R.T.L.

(604d) As the first account of the pathology of pulmonary schistosomiasis which was published by Belleli in 1885 in *Unione Medica Egiziana* is almost inaccessible, Mainzer gives German and English translations of the more important portions of Belleli's paper "Les oeufs de *Bilharzia haematobia* dans les poumons", and summarizes later publications on this subject. R.T.L.

(604e) [This is a translation of a paper which appeared in *Rev. Kuba Med. trop. Parasit.*, 1950, **6**, 1–7. For abstract see Helm. Abs., **19**, No. 124a.]

605—Zentralblatt für Allgemeine Pathologie und Pathologische Anatomie.

a. LESCHKE, H., 1951.—Über reizlos verkalkte Oxyuren im Eileiter." **87** (10/11), 385–387.

(605a) Leschke records the findings of calcified Enterobius in the Fallopian tube of a 44-year-old Berlin woman. The condition gave rise to no reaction of any kind and was discovered accidentally during a surgical operation on the uterus. A.E.F.

606—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

a. BOLLE, W., 1951.—"Zur Ätiologie der Hepatitis interstitialis chronica multiplex (parasitaria) des Schweines." **157** (5), 382–384.

(606a) Bolle reports a case of chronic parasitic interstitial hepatitis in a 13-week-old pig from the liver of which was recovered post mortem an undiagnosed, 0·3 mm. long nematode larva. Although both trematode and cestode larvae have previously been implicated in this condition this is said to be the first record of a nematode from such lesions. A.E.F.

607—Zoologicheski Zhurnal.

a. DUBININA, M. N., 1951.—[Biology and distribution of *Diphyllobothrium erinacei-europaei* (Rud., 1819) Iwata, 1933.] **30** (5), 421–429. [In Russian.]

b. SHCHEGOLEV, G. G., 1951.—[Observations on the mobility of medicinal leeches in reservoirs.] **30** (5), 430–439. [In Russian.]

(607a) Dubinina comes to the conclusion that in Europe and Asia there exists only one species of *Diphyllobothrium* in wild and domestic dogs, viz., *D. erinacei-europaei* (syn. *D. ranarum, D. reptans, D. mansoni* etc.). The wide distribution of *D. erinacei-europaei* is connected with that of its second intermediate hosts, snakes and frogs: rodents and birds may also act as second intermediaries. The life-cycle is as follows: eggs hatch in water on the

10th day and the coracidia are swallowed by *Acanthocyclops viridis, Mesocyclops leuckarti* etc. and become mature procercoids 13 days later. Infected cyclops are swallowed by *Natrix natrix, N. tessellatus, Elaphe dione, Rana ridibunda* and rodents. These are swallowed by dogs, foxes and other wild Felidae and Canidae in which the worms become adult on the 11th to 12th day. Development in cold-blooded animals seems to be primary and essential for *D. erinacei-europaei*. Development through rodents and other mammals occurs more rarely and seems to be secondary. C.R.

NON-PERIODICAL LITERATURE

608—ANON., 1951.—" The research and experimental record of the Ministry of Agriculture, Northern Ireland, 1951. Agricultural Entomology Division." Belfast : H.M. Stationery Office, pp. 117–118.

The Potato Root Eelworm (Northern Ireland) Order, 1945 made it compulsory for every person who grows potatoes or tomato plants on land which is infested or suspected to be infested with *Heterodera rostochiensis* to notify the Ministry of Agriculture. Where the presence of the eelworm is confirmed the growing of potatoes or tomatoes, the removal of soil, vegetables, weeds or plants to the roots of which any soil adheres, is prohibited. Steam sterilization or resoiling under official supervision is compulsory in the case of greenhouse infestations. Over 70,000 soil samples from 150,000 acres were officially examined between 1945 and 1950. In 1950, 379 of 15,000 samples were found to be infested, most of which came from gardens and allotments. The relatively small number of field cases were from a few localized areas remote from the main seed potato producing districts. The sampling service meets the requirements of importing countries whose regulations require a certificate of freedom from potato root eelworm not only for consignments of seed potatoes but also for other plants exported for propagating purposes from Northern Ireland. R.T.L.

609—ANON., 1951.—" Wormal : new flock treatment for control of tapeworms, large roundworms and cecal worms." Charles City, Iowa : Dr. Salsbury's Laboratories, 6 pp.

"Wormal", a mixture containing nicotine 3%, phenothiazine 29% and butynorate (di-*n*-butyl tin dilaurate) 7%, is claimed to be a highly effective, safe and palatable anthelmintic treatment for flocks of poultry. One lb. in 100 lb. of feed was given to every 300 growing birds or 200 adult birds, during two days or until it was consumed. All other food was withheld. There was no noticeable effect on egg production. Treatment on a monthly schedule gave complete worm control. Experiments are quoted showing that effectiveness on *Raillietina cesticillus* was 99%–100%, on *Ascaridia galli* 77%–86% and on *Heterakis gallinae* 100%. R.T.L.

610—ANON., 1951.—" Scientific research in British universities 1950–1951." London : Department of Scientific & Industrial Research, 459 pp.

From this compilation of the projects being undertaken by research teams and individuals in the scientific departments of British universities and university colleges during the 1950–1951 session, it appears that there were 32 investigators engaged on helminthological researches in the Universities of Belfast, Birmingham, Cambridge, Durham, Edinburgh, Glasgow, Leeds, Liverpool, London, Nottingham, Reading, St. Andrews, Sheffield and in the University College of Wales at Aberystwyth. R.T.L.

611—BAYLIS, H. A., 1951.—" The parasitic worms of British reptiles and Amphibia." In : Smith, M., "British Amphibians and Reptiles". London : pp. 267–273.

Baylis gives a brief general account of the larval and adult trematodes, nematodes, cestodes and acanthocephalans which are found in British reptiles and amphibians. He also includes notes on some allied genera and species which are found in other European countries. S.W.

612—CAMERON, T. W. M., 1951.—" The parasites of man in temperate climates." Toronto : University of Toronto Press, 2nd edit., xi + 215 pp.

In revising the text for this second edition, the author has taken the opportunity to include a new appendix dealing with parasites and parasitic diseases of exotic origin likely to be seen in north temperate climates as a result of the war. Several new illustrations and diagrams have been added. R.T.L.

613—CAMERON, T. W. M., 1951.—" The parasites of domestic animals. A manual for veterinary students and surgeons." London : Adam & Charles Black, 2nd edit., xvi + 420 pp., 35/-.

In this second edition the text has been revised and enlarged. New chapters deal with the external parasites of domesticated animals which are of economic significance or of common occurrence, and with the principles of prevention of helminth diseases. R.T.L.

614—COMMONWEALTH BUREAU OF SOIL SCIENCE, 1951.—" Bibliography of soil science, fertilizers and general agronomy 1947–1950." Harpenden : Commonwealth Bureau of Soil Science, xxviii + 535 pp., 35/-. [Helminth diseases, pp. 189–191.]

615—CRAIG, C. F. & FAUST, E. C., 1951.—" Clinical parasitology." London : Henry Kimpton, 5th edit., 1032 pp., 84/-.

616—FRANKLIN, M. T., 1951.—" The cyst-forming species of *Heterodera*." Technical Communication. Commonwealth Bureau of Agricultural Parasitology (Helminthology), St. Albans, 147 pp., 18/6d.

In this manual Dr. Mary T. Franklin succinctly describes the morphological characters, diagnostic features, geographical and host distribution, phytopathology and life-histories of the eight cyst-forming species of the eelworm genus *Heterodera*. The role of weeds as reservoir hosts and the chemical, biological and cultural measures which, at various times, have been suggested for their control are discussed. The text which is illustrated by 22 figures contains a number of original observations. There are 646 citations in the list of references. R.T.L.

617—HEELEY, W., 1951.—" D-D—a soil fumigant against *Heterodera marioni* in the United Kingdom." International Congress of Crop Protection (2nd), London 1949. Proceedings, pp. 193–202.

From green-house experiments on the value of D-D for the control of *Heterodera marioni* on tomatoes Heeley found that all treated plots showed significantly less attack than untreated plots. With one exception, those injected at the rate of 400 lb. per acre were virtually free from attack. Even at the rate of 200 lb. per acre there was a high degree of economic control of the nematode. There was a great variation in the fruit yield in different green-houses. This is attributed to differences in methods of cultivation, but in the same green-house the increased yield after D-D injections was 31% after 200 lb., 32% after 300 lb., and 30% after 400 lb. per acre. Fruit taint was observed where the cold soils were not heated prior to planting up, but no taint resulted when the injections were made

when the soil temperature was above 40°F. or when the green-houses were heated prior to planting up. The eelworm population built up again in the following season, unless complete control was established. R.T.L.

618—HERRERA ROSALES, E., 1951.—" Tremátodos de los quelonios de México." Thesis, Mexico, 65 pp.

Twelve species of trematodes from Mexican turtles are described and illustrated with their hosts and geographical distribution. Of these *Telorchis robustus, T. dhongokii, T. singularis* and *T. reelfooti* are recorded from Mexico for the first time. *T. caballeroi* n.sp. from *Geoemyda areolata* is characterized by the extraordinary size of the cirrus pouch. *T. dissimilis, T. reelfooti, T. membranaceus* and *T. thamnophidis* are listed as new combinations for *Cercorchis dissimilis, C. reelfooti, C. membranaceus* and *C. thamnophidis.* R.T.L.

619—HYMAN, L. H., 1951.—" The invertebrates : Platyhelminthes and Rhynchocoela, the acoelomate Bilateria." Vol. II. New York : McGraw-Hill Book Company, Inc., vii + 550 pp., $9.00.

The second volume of "The Invertebrates" by Miss Hyman covers the acoelomate Bilateria. An introductory chapter discusses the origin of the Bilateria, spiral cleavage and determinate development, the trochophore larva, the trochophore theory and the general phylogenetic significance of larval types, modes of origin of the mesoderm, body cavities of the Bilateria, segmentation and the organ-systems of the Bilateria. The two succeeding chapters deal with the characters and classification of the phyla Platyhelminthes and Rhynchocoela and with phylogenetic considerations. Each chapter opens with a historical section and ends with a bibliography. Miss Hyman comments on the great confusion which exists at present in the classification of the Digenea and dissents from that based on the number and location of the suckers so widely promulgated in text-books. She considers that Poche's classification (1926) is probably the best available at present and omits any grouping of the Digenea into suborders and considers them only under family names. R.T.L.

620—HYMAN, L. H., 1951.—" The invertebrates : Acanthocephala, Aschelminthes, and Entoprocta ; the pseudocoelomate Bilateria." Vol. III. New York : McGraw-Hill Book Company, Inc., vii + 572 pp., $9.00.

The third volume of "The Invertebrates" completes Miss Hyman's masterly consideration of the noncoelomate invertebrates and covers the Pseudocoelomate Bilateria which are divided into the phyla, Acanthocephala, Aschelminthes and Entoprocta. The name Nemathelminthes has been abandoned for Aschelminthes as it has been used for so many different groupings. Acanthocephala is treated as a separate phylum as no definite conclusion can yet be reached as to its relationships with the Platyhelminthes or the Aschelminthes. Hyman doubts the utility of the superphylum concept which led Chitwood to propose Pachydermata for the flat worms, nemertines and acanthocephalans. The phylum Acanthocephala is divided into three orders, Archiacanthocephala, Palaeacanthocephala and Eoacanthocephala. Their morphology and physiology, development, ecology and phylogeny are succinctly summarized. The phylum Aschelminthes comprises six classes, Rotifera, Gastrotricha, Kinorhyncha or Echinodera, Priapulida, Nematoda and Nematomorpha or Gordiacea. The class Nematoda is subdivided into 17 orders of which seven are mostly free-living. Under Nematoda, successive sections deal with external characters, body wall, pseudocoele, sensory, digestive, excretory and reproductive systems, embryology, life-cycles and histological peculiarities. The characteristics of each order are then considered and illustrated by many original figures. Ecology, physiology and host-parasite relationships are fully considered and the systematic relation of nematodes to other groups of invertebrates is discussed. Nematomorpha is subdivided into two orders, Gordioidea and Nectonematoidea. Whereas the former are closer to Kinorhyncha and Priapulida, the latter are more nearly allied to the Nematoda. R.T.L.

621—INTERNATIONAL CONGRESS ON FILARIASIS, 1951.—" Conference of Experts on Filariasis and Elephantiasis, Papeete, Tahiti, August 21 to September 1, 1951. Summary of Proceedings." Tahiti, South Pacific Commission : 22 pp. [Mimeographed.]

622—KOEGEL, A., 1951.—" Zoonosen (Anthropozoonosen). Die für Mensch und Tier gemeinsam wichtigen Krankheiten." Basle : Ernst Reinhardt, 243 pp.

Chapter VII of this conveniently sized handbook on the principal diseases of man and animals deals succinctly with the helminth infections and the various ways in which they are acquired. R.T.L.

623—KOUWENAAR, W., STEENIS, P. B. VAN & WINCKEL, C. W. F. [Editors], 1951.—" Leerboek der tropische geneeskunde." Amsterdam : Scheltema & Holkema's Boekhandel en Uitgeversmaatschappij N. V., xvi + 928 pp.

624—LAPAGE, G., 1951.—" Parasitic animals." Cambridge : Cambridge University Press, xxi + 351 pp., 21/-.

The way of life of parasitic animals and particularly of those which infect man and domesticated animals is here presented in a manner which should interest the general reader as well as the more purposeful student and give him some idea of the vast extent and variety of the losses they inflict. R.T.L.

625—McMULLEN, D. B., 1951.—" Progress report (1950) on a molluscacide screening project." Medical Research and Development Board and the University of Oklahoma School of Medicine. Reports Nos. 143–150, 12 pp. [Mimeographed.]

4,379 chemicals and 19 dual mixtures were tested for molluscicidal action on *Oncomelania nosophora* by a modified plate technique (McMullen, 1949) in which the filter paper was impregnated with 2 c.c. of a 1:10,000 solution of the chemical, dried and put into a petri dish. The snails were placed in the centre of the paper and 3 c.c. of water were added. The data obtained were compared with those given by three compounds known to be molluscicidal, viz., 2-cyclohexyl-4,6-dinitrophenol, its dicyclohexylamine salt and the sodium salt of pentachlorophenate. No super-molluscicides were found but 40 chemicals showed activity comparable with these compounds. The data obtained on the active compounds are tabulated. The best single chemical was 2-sec-butyl-4,6-dinitrophenol with a calculated MLD_{50} of 1:92,000. Two of the dual mixtures made up of 2-cyclohexyl-4, 6-dinitrophenol and chemicals known to cause body extension had an MLD_{50} almost double this figure. R.T.L.

626—MOST, H. [Editor], 1951.—"Parasitic Infections in Man." Symposium No. 4 of the Section on Microbiology, New York Academy of Medicine. Columbia University Press, 229 pp., $4·50.

a. RUSSELL, P. F., 1951.—" Introduction : the world health importance of parasitic diseases." pp. 3–8.
b. CULBERTSON, J. T., 1951.—" Immunological mechanisms in parasitic infections." pp. 19–36.
c. BOZICEVICH, J., 1951.—" Immunological diagnosis of parasitic diseases." pp. 37–55.
d. STOLL, N. R., 1951.—" Diagnosis of intestinal helminths and protozoa : current perspective." pp. 56–75.
e. BUEDING, E., 1951.—" Metabolism of helminths." pp. 150–162.
f. BROWN, H. W., 1951.—" Therapy of filariasis and the more common intestinal helminths." pp. 203–213.
g. BRADY, F. J., 1951.—" The treatment of schistosomiasis." pp. 214–229.

[This volume comprises 14 papers on parasitic infections in man (of which seven are of helminthological interest) originally presented at the Fourth Symposium of the Section on Microbiology held at the New York Academy of Medicine in March 1949. These

contributions are extensive reviews of recent advances, and are intended to bring to the attention of microbiologists and allied clinical and laboratory investigators correlated scientific data and concepts.]

627—STECK, W., 1951.—" Grundriss der inneren Krankheiten des Pferdes. Klinische Diagnostik und kurzgefasste Übersicht." Basle : Ernst Reinhardt, 166 pp.

In this brief clinical précis much of the information is summarized in 34 tables. One of these which lists the helminths which inhabit the horse's alimentary canal gives (i) measurements of the adult worms, (ii) the parenteral larval stages, (iii) the size and shape of the eggs in the faeces, (iv) clinical symptoms and (v) treatment. A modification of Fülleborn's enrichment technique for the examination of faeces for eggs is briefly described. The eggs of the commoner species are crudely figured. Another table gives their size, shape and form [but no mention is made of the possible presence of *Fasciola* eggs in the faeces]. R.T.L.

628—UNITED STATES DEPARTMENT OF AGRICULTURE, 1951.—" Index-catalogue of medical and veterinary zoology. Part 15. Authors : Si to Szyszkowski." Washington, D.C. : U.S. Government Printing Office, pp. 4677-4985.